

AMERICAN PROBLEMS OF RECONSTRUCTION

*A National Symposium on the Economic
and Financial Aspects*

EDITED BY
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WITH A FOREWORD
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THE SPIRIT OF THE GREAT REPUBLIC

*“Yet have my thoughts for thee been vigilant,
Bound to thy service with unceasing care.”*

—Wordsworth.

NOTE TO THE SECOND EDITION

The article on Tariff Problems, by Commissioner F. W. Taussig, which was omitted from the first edition, is now included at the end of this volume.

Owing to the rapid sale of this volume, there was not sufficient time to arrange the chapters in this edition.

PREFACE

An apology is indeed necessary for adding another volume to the flood of publications on the war. English and German economists have built up an extensive literature on the after-war problems, whereas America has produced not a single volume on the subject. An American work of this character, therefore, seemed likely to the editor to fill a pressing need. It was hoped that one more qualified for the task than he would carry out the plan.

The scheme of treatment on which this book is based was presented by the editor last December both to Prof. Leo S. Rowe, president of the American Academy of Political and Social Science, and to Prof. Irving Fisher, president of the American Economic Association. The board of neither association could at that time promptly undertake the study of the project. Both gentlemen, however, advised the editor to develop the idea himself and have been of aid in its execution. The result, in part, is this volume.

The contributors were requested to treat their subjects with the following points in view:

- (a) What are the temporary effects of the war?
- (b) How may readjustment to peace conditions be facilitated?
- (c) What are the permanent effects of the war?
- (d) What changes in our national life must result therefrom?
- (e) What should be our national economic policy?

A chapter on the tariff, by Commissioner F. W. Taussig, which was part of the plan, had to be omitted from this edition owing to his other pressing duties.

Wide as is the scope of the work, it includes only the financial and economic aspects of the question in this country. Other phases of the reconstruction problem may be taken up in a later volume if circumstances permit. The European programs of reconstruction, in so far as they furnish a guide to the treatment of the American problem, will be considered by the editor in a volume to appear shortly.

The prime purpose of the venture is to stimulate thought in this country on the subject of reconstruction, which is the question of the hour in all of Europe. A democracy is controlled by the will of the people. Intelligent control demands an enlightened public. The task of education rests with the economists of the country, to whom, it is hoped, this volume will be suggestive. If the book accomplishes this end, thanks will be due chiefly to Mr. Eugene Meyer, Jr., whose aid and advice constituted an underwriting of the plan. In the fall of 1916 he urged the study of the subject upon the editor, then statistician to Eugene Meyer, Jr., & Company, and he has continued his interest in the subject during his war work in Washington.

The encouragement of Mr. Vanderlip and Professor Fisher, who early in January saw the possibilities of usefulness of a work of this kind and who were the first to consent to participate in it, insured the success of the undertaking. Thanks are due to Prof. Leo S. Rowe, now Assistant Secretary of the Treasury; Prof. Jeremiah W. Jenks, of New York University; Prof. Emory R. Johnson, now with the War Trade Board; Hon. Paul M. Warburg, of the Federal Reserve Board; Dean E. F. Gay, now with the United States Shipping Board; Dean R. A. Pearson, now Assistant Secretary of Agriculture; and Dr. Francis Walker, now with the Federal Trade Commission, for their kind suggestions from time to time.

Credit is also due to Dr. Leo Wolman, of Johns Hopkins University, and Dr. Ruth Wallerstein, of the Bureau of Intelligence of the War Trade Board, who were kind enough painstakingly to read the manuscript and aid in the editing; and to Mr. Bernard H. Lane, of the United States Geological Survey, who has made many helpful suggestions during the reading of the proof. The special interest taken by Mr. John Macrae of E. P. Dutton & Co., from the inception of the idea in November, 1917, through the process of manufacture, was greatly appreciated by the editor.

THE EDITOR.

Cosmos Club, Washington, D. C.
May, 1918.

CONTENTS

	PAGE
FOREWORD, BY FRANKLIN K. LANE, SECRETARY OF THE INTERIOR	XXV
PART I. A PERSPECTIVE OF THE PROBLEM	
I. THE PROBLEM OF RECONSTRUCTION IN THE UNITED STATES, BY ELISHA M. FRIEDMAN	3
II. PRINCIPLES OF RECONSTRUCTION IN EUROPE, BY ELISHA M. FRIEDMAN	15
III. ECONOMIC PROBLEMS DURING THE WAR AND AFTERWARD, BY ALEXANDER D. NOYES	39
IV. THE AMERICAN OF TO-MORROW, BY GEORGE W. PERKINS	45
PART II. EFFICIENCY IN PRODUCTION	
V. OUR MINERAL RESERVES, BY GEORGE OTIS SMITH	59
VI. TECHNICAL RESEARCH:	
(a) GENERAL ASPECTS, BY WILLIS R. WHIT- NEY	89
(b) ENGINEERING AND ALLIED SUBJECTS, BY A. A. POTTER	99
(c) CHEMICAL INDUSTRIES, BY ALLEN ROGERS	115
VII. SCIENTIFIC MANAGEMENT, BY FRANK B. GIL- BRETH AND LILLIAN MOLLER GILBRETH	125
VIII. READJUSTMENT OF INDUSTRIES:	
(a) STEEL, BY CHARLES M. SCHWAB	135
(b) CHEMICALS, BY BERNHARD C. HESSE	145
IX. CAPITAL, LABOR, AND THE STATE, BY LOUIS B. WEHLE	153
X. CONCENTRATION AND CONTROL IN INDUSTRY AND TRADE, BY WILLIAM B. COLVER	177
PART III. ADJUSTMENTS IN TRADE AND FINANCE	
XI. THE RAILROAD PROBLEM, BY RAY MORRIS	199

XII.	THE DISTRIBUTION OF AGRICULTURAL PRODUCTS AND THE FUNCTION OF PRODUCE EXCHANGES, BY CHARLES J. BRAND	217
XIII.	THE SHIPPING PROBLEM, BY EMORY R. JOHNSON	233
XIV.	THE FREE PORT AS AN INSTRUMENT OF WORLD TRADE, BY EDWIN J. CLAPP	245
XV.	INTERNATIONAL COMMERCE, BY O. P. AUSTIN	267
XVI. (a)	TARIFF PROBLEMS, BY F. W. TAUSSIG	465
(b)	GOVERNMENT AIDS TO TRADE, BY CHAUNCEY DEPEW SNOW	279
XVII.	FINANCING OUR FOREIGN TRADE, BY HENRY E. COOPER	305
XVIII.	STABILIZING FOREIGN EXCHANGE, BY ROBERT L. OWEN	321
XIX.	FOREIGN INVESTMENTS, BY FRANCIS H. SISSON	345

PART IV. PROGRAMS, MONETARY AND FISCAL

XX.	STABILIZING THE DOLLAR IN PURCHASING POWER, BY IRVING FISHER	361
XXI.	THE WAR AND INTEREST RATES, BY E. W. KEM- MERER	391
XXII.	NATIONAL THRIFT, BY FRANK A. VANDERLIP	415
XXIII.	FISCAL RECONSTRUCTION, BY EDWIN R. A. SELIG- MAN	427
XXIV.	CAN DEMOCRACY BE EFFICIENT?—THE MECHAN- ICS OF ADMINISTRATION, BY FREDERICK A. CLEVELAND	447

ILLUSTRATIONS

MAP OF THE PORT OF HAMBURG	247
VIEW OF THE PORT OF HAMBURG	265

ANALYTICAL TABLE OF CONTENTS

PART I. A PERSPECTIVE OF THE PROBLEM

	PAGE
THE PROBLEM OF RECONSTRUCTION IN THE UNITED STATES, BY ELISHA M. FRIEDMAN . . .	3
An Explanation of the Opposition to Discussion of Reconstruction	3
The Present Need for Taking up a Consideration of Reconstruction	4
A Tentative Plan	5
Scope of the Immediate Problem of Transition	6
Scope of the Long Range or Reconstruction Problem	8
The Lessons of the War and of European Reconstruction to America	9
A. A General Economic Staff	9
B. An Uninterrupted National Economic Policy	11
C. The Tools of Democracy	12
PRINCIPLES OF RECONSTRUCTION IN EUROPE, BY ELISHA M. FRIEDMAN	15
Literature of Reconstruction	15
Justification for the Study of the Problem	16
Future Conditions to be Faced	22
Some Definitions	24
The Problem	25
The Nature of the Present Period	25
The Dangers of the Period	29
A. The Lack of Restraint	29
B. National Hysteria	30
C. National Indifference	31
D. Difficulty of Arousing the National Consciousness	31
E. Production of Fragmentary and Impractical Efforts	32
The Aim of a Reconstruction Policy	33
ECONOMIC PROBLEMS DURING THE WAR AND AFTERWARD, BY ALEXANDER D. NOYES	39
Historic Precedents	39
Profound Changes of the Period	39
Government Control	40

The Railways	41
The Currency	42
International Commerce	42
Disposition of Interallied Advances	42
A Moot Question	43
IV. THE AMERICAN OF TO-MORROW, BY GEORGE W. PERKINS	45
Profound Changes and a New Outlook	45
Recollections of the Passing Order	46
A Problem of Adjustment	46
Powers of the Individual, Enlarged by Science, Need Regulation	47
Relation of Labor and Capital	48
Wanted—A New Heart and a New Spirit	49
Past and Future—A Contrast	50
Basis of Belief in the New Order	51
Universal Training for Service	52
Centralization and Responsibility	52
The New Nationalism	53
The New Internationalism	54
The Man of the Future	54
PART II. EFFICIENCY IN PRODUCTION	
V. OUR MINERAL RESERVES, BY GEORGE OTIS SMITH	59
Introduction	59
Minerals the Foundation of the Nation's Industry	59
Strategic Value of Industrial Independence	60
America's Leadership in Mineral Production	60
War Adjustments	61
The New Demand for Raw Material of Domestic Origin	61
Increased Demand for Power	61
War-time Test of the Mineral Industry	62
Increased Output of Metals	63
Present Degree of Independence	64
Substitution of Domestic Products for Imports	64
Percentage of Consumption Met by Domestic Production	64
Outstanding Deficiencies	65
Extent of Reserves	66
America's Future Strength	66
Distribution of Resources	66
Estimated Supplies of Essential Minerals	66

ANALYTICAL TABLE OF CONTENTS

CHAPTER		xiii PAGE
	World Position of the United States in Reserves	69
	After-War Needs	70
	Vision Necessary Even To-day	70
	Readjustment of Mineral Industry	70
	Expansion Justified	71
	Utilization of Resources	73
	Factors Promoting Full Utilization	73
	Price and Extent of Market	73
	Engineering Efficiency	75
	Certainty of Tenure	76
	Equitable Distribution of Net Proceeds	77
	Government Coöperation	78
	Full Utilization the Ideal	79
	Public Benefit Through Use	79
	Choice of Sources of Material	79
	Economic Distribution	80
	Balancing of Present and Future Values	82
	Partnership of Nation and Citizen	83
	Résumé	86
VI.	(A) TECHNICAL RESEARCH—GENERAL ASPECTS, BY WILLIS R. WHITNEY	89
	The Importance of Research in Reconstruction	89
	The Unconquered World of Matter	90
	Does Knowledge of Matter Make for Materialism?	91
	The Temporary Changes Resulting from the War	92
	The Necessary Readjustments	93
	A Triumph of Research	93
	A Policy to Follow	95
	(B) TECHNICAL RESEARCH—ENGINEERING AND ALLIED SUBJECTS, BY A. A. POTTER	99
	Effect of the War upon Technical Research	99
	Technical Research in the United States before the War	102
	Engineering Research in Government Bureaus and Departments	103
	The Mellon Institute	104
	Technical Research in Colleges and Universities	105
	Research in the Engineering Profession	108
	Urgent Investigations during the War	109
	Technical Research after the War	111

ANALYTICAL TABLE OF CONTENTS

(C) TECHNICAL RESEARCH—CHEMICAL IN-	
DUSTRIES, BY ALLEN ROGERS	115
Invention vs. Research	115
The Results of Our Neglect of Research	116
The Relation of Research to Industry	118
Some Recent Progress	120
A National Research Laboratory	121
VII. SCIENTIFIC MANAGEMENT, BY FRANK B. GIL-	
BRETH AND LILLIAN MOLLER GILBRETH	125
Function of Scientific Management	125
Its Claim as a Reconstruction Agency	125
Characteristics of Temporary Changes	126
Appreciation of Importance of Waste Elimination	126
New Supply of Workers	127
Growth in Willingness to Coöperate	127
Appreciation of Need for Education	127
Utilization of Changes	127
Permanent Changes Caused by War	128
A Policy Needed	129
Scientific Management as a Reconstructive Agency	130
Necessity of Using it at Once	130
"The One Best Way" as a Constructive Force	131
A Problem of Education	132
Scientific Management as an Agent of Democracy	132
Its Place in the World Development	133
Its Call to the Worker	134
VIII. (A) READJUSTMENT OF INDUSTRIES: STEEL,	
BY CHARLES M. SCHWAB	135
Introduction	135
No Abnormal Expansion of Capacity	136
Demand for Steel Deferred	137
100 Per Cent on Government Work	139
The Conversion of Plants	139
New Uses for Steel after the War	140
Export Trade in Steel	141
Research	142
The New Outlook	143
(B) READJUSTMENT OF INDUSTRIES: CHEM-	
ICALS, BY BERNARD C. HESSE	145
The Attitude of the Public	146
National Team Work	146
The Effect of this New Public Viewpoint	147

ANALYTICAL TABLE OF CONTENTS

CHAPTER		XV PAGE
	Our Increased Chemical Industry	147
	Permanent Changes Resulting from the War	148
	Our Real Object	148
	Temporary Conditions Resulting from the War	149
	Readjustment after the War	150
	National Economic Policies	150
IX.	CAPITAL, LABOR AND THE STATE, BY LOUIS B. WEHLE	153
	Capital and the State before the War	153
	Industrial Concentration Followed by Nationalized Control	154
	Capital and the State during the War	155
	Disintegration of Alliances between Financial Groups	156
	Capital's Position Weakened by the War	159
	Labor and the State during the War	156
	Labor's New Part in Adjusting Disputes	160
	Labor's Part in War Administration	163
	Capital, Labor, and the State after the War	165
	Conservatism of Organized Labor in America	165
	National Productiveness and the War Debt	170
	Democratization of Industrial Management and the New Responsibilities of Labor	171
	Industrial Stabilization	173
	Has America a New Opportunity?	175
X.	CONCENTRATION AND CONTROL IN INDUS- TRY AND TRADE, BY WILLIAM B. COLVER	177
	Historical Survey	177
	Legal Aspects of Consolidation	178
	The Economic Question	179
	The Theory of Anti-trust Legislation	180
	Recent Legislation	181
	Foreign Trust Policies	182
	The German Cartel and Its Objects	183
	Changes Resulting from the War	184
	Export Combinations	186
	Cost Finding and Price Fixing	187
	Control of Industry	190
	A Reconstruction Policy and Its Determinants	191
	The International Aspect of Subsidized Industries	193
	Outlines of a Domestic Policy	194

PART III. ADJUSTMENTS IN TRADE AND FINANCE

CHAPTER	PAGE
XI. THE RAILROAD PROBLEM, BY RAY MORRIS	199
Recent Railroad History	199
The Assumption of Railroad Operation by the Government	201
The Need of Studying Terms of Resumption of Private Operation	202
Difficulties of Government Ownership	202
Some Problems Calling for Treatment	204
Concentration of Authority and Responsibility	204
The English Standard of a Fair Return	209
The Canadian Profit-Sharing Plan	211
Wages and Prices	213
Summary	215
XII. THE DISTRIBUTION OF AGRICULTURAL PRODUCTS AND THE FUNCTION OF PRODUCE EXCHANGES, BY CHARLES J. BRAND	217
Introduction	217
The General Problem of Distribution of Agricultural Products	218
1. More Extended Organization of Producers	218
2. Standardization of Grades and Containers	218
3. Conservation of Products during the Course of Transportation and in Storage	219
4. Collection and Dissemination of Authoritative Market Information	220
5. Market Inspection of Perishable Products	221
6. Licensing the Agencies of Distribution	221
7. Improvement in Methods of Retail Distribution	222
Summary	223
The Function of Produce Exchanges	224
Types	224
Functions of Future Exchanges	226
The Origin and Execution of a Future Contract for Hedging Purposes	227
Modification of Practices on Future Exchanges	228
Limitations of Fluctuation to a Certain Number of Cents per Day	229
Changes that May Have Permanent Value, and Certain Other Suggestions	229

XIII. THE SHIPPING PROBLEM, BY EMORY R. JOHNSON	233
The Dual Nature of the Shipping Problem	233
Some Recent History	234
A Seafaring Bent	235
The Relation of Shipping to Our Post Bellum Commerce	236
The Effect of the War on Trade	237
Direct Trade and Short Routes	238
Interest in Maritime Affairs Needed	239
Wanted—A National Shipping Policy	240
Private Encouragement of Shipping	241
Private Enterprise and Government Function	242
XIV. THE FREE PORT AS AN INSTRUMENT OF WORLD TRADE, BY EDWIN J. CLAPP	245
Free Port Is Not Free Trade	245
Definition and Advantages of Free Ports	245
A Free Port Described	246
Equipment of Hamburg Free Port	248
Reëxportation Facilitated	249
Export Industries in Free Port	249
Rapid Handling of Ships	250
The Effect on Trade	250
The British Problem	251
London Consignment Market	251
Advantages to British Trade and Industry	252
Our Dependence on British Reëxports	252
Our Small Reëxports	253
The Free Port and the Consignment Market in the United States	254
Free Port vs. Bonded Warehouse	254
Disadvantages of Bonded Warehouses	255
The Free Port Warehouse	256
Free Port District for Industries	257
Difficulties of Drawback System	258
Free Port and Better Handling of Ships	259
Customs Cause Pier Delays	260
New York Chamber of Commerce on Free Ports	260
Economic Changes Favoring Free Ports	261
World Trade Already Coming Here	262
Revival of Transshipment in International Trade	263
Cities Should Finance Free Ports	264
Men, Not Mechanism, Must Win with Foreign Trade	264

XV.	INTERNATIONAL COMMERCE, BY O. P. AUSTIN	267
	Twenty Billion Dollars' Worth of Merchandise	
	Annually Exchanged Among Nations	267
	The Warring Nations are the Great Trading Nations	268
	The Belligerents are the World Manufacturers . . .	269
	Commerce Must be Renewed at End of War	269
	Man's Commercial Requirements not Changed by	
	War	270
	Regarding New Trade Regulations	270
	International Hostilities Merely Suspend Inter-	
	national Trade	270
	Commerce Between Belligerent Groups Should not	
	be Sacrificed	271
	Industrial and Commercial Power of Belligerents	
	after the War	272
	Effect of War Currency Inflation on After-war In-	
	dustrial Powers	274
	Other Changes Abroad	276
	Summary	276
	The Problem for the United States	277
XVI.	(A) TARIFF PROBLEMS, BY F. W. TAUSSIG	465
	I. Military Articles	467
	II. Essential Articles	472
	III. Non-Essential Articles. The Tariff Controversy	477
	IV. The Tariff Commission and the Tariff	482
	(B) GOVERNMENT AIDS TO TRADE, BY	
	CHAUNCEY DEPEW SNOW	279
	Various Kinds of Government Aid	279
	Importance of Legislative Department	280
	Diplomatic Aid—External Affairs	280
	After-War Need of Better Information Service . . .	281
	Winning the War Important Trade Promotion . . .	281
	Foreign Experience	282
	England	282
	Germany	289
	France	292
	Japan	294
	Austria, Italy, and Other European Countries . .	298
	Yearbooks, Expositions, and Other Forms of Trade	
	Promotion in Other Countries	301
	Our Needs for the Future	302

ANALYTICAL TABLE OF CONTENTS

xix
PAGE

CHAPTER

XVII.	FINANCING OUR FOREIGN TRADE, BY	
	HENRY E. COOPER	305
	Introduction	305
	Changes Brought by the War	305
	Adjustments under Consideration	306
	In England	306
	In France	307
	In Germany	308
	In Austria	309
	In Neutral Countries	309
	Conditions to be Met during Transition Period	309
	Exchange Value of the Dollar	311
	The Banker's Share in the Rehabilitation of Trade and Industry	311
	Basis of Our Foreign Trade	312
	International Acceptance Market	313
	International Credit Information	315
	Export of Capital	315
	The British Example	316
	The German Example	317
	Conclusions	319
XVIII.	STABILIZING FOREIGN EXCHANGE, BY ROB- ERT L. OWEN	321
	Facts	321
	Introduction	321
	Trade Balances and Exchange Rates	321
	The Evils of the Present Situation	324
	Instability	324
	The Harm to the Community	324
	The Loss to the Individual	325
	The Alleged Advantages of an Appreciated Ex- change	326
	The Practical Aspect	326
	The Point of View of the Allies' Interest	327
	The Point of View of the Interest of the United States	329
	Underlying Causes of the Present Situation	333
	Normal Correction of Exchange Involving Two Countries	333
	Exchange Rates of Three Countries—Arbitrage	334
	The Present Abnormal Situation	334
	Remedy	336
	Need for the Remedy	336

ANALYTICAL TABLE OF CONTENTS

Immediate Remedy—Credits	336
The Permanent Remedy—Federal Reserve Foreign Bank	338
The Organization and Fundamentals of the Federal Reserve Foreign Bank	339
The Purposes and Advantages of the Federal Reserve Foreign Bank	341
Conclusion	341
XIX. FOREIGN INVESTMENTS, BY FRANCIS H. SISSON	345
The Importance of Foreign Investments	345
How Foreign Investments Aided England	346
We Have Become Bond Buyers	348
Possible Factors of the Future	348
Reconstruction Opportunities	351
France Will Recover Rapidly	351
French Finances Sound	352
Reasons for Solidarity	353
Why America Must Finance Europe	353
North America	354
South America	354
Foundation for Foreign Financing Laid	355
American Leadership	356

PART IV. PROGRAMS, MONETARY AND FISCAL

XX. STABILIZING THE DOLLAR IN PURCHAS-

ING POWER, BY IRVING FISHER	361
The Facts as to Price Movements	361
General Nature of the Question	361
Index Numbers	362
The Causes of Price Movements	363
Some Erroneous Explanations	363
Price Fluctuations Due to Money Conditions	364
The Gold Dollar Fixed in Weight but Not in Purchasing Power	365
The Evils of Price Movements	368
Unjust Transfer of Property	368
Cheating of Savings Depositors and Bondholders	369
Suffering of Salaried Classes is Cause of Unrest	370
Fluctuations Produce Instability and Crises	371
The Remedy	372
Fix the Purchasing Power of a Dollar	373

ANALYTICAL TABLE OF CONTENTS

CHAPTER

xxi

PAGE

Any Single Commodity is too Variable a Standard	375
The Multiple Standard of Commodities	376
Gold a Medium of Exchange Used with a Com-	
modity Standard of Value	377
Vary the Weight of the Dollar	378
Use Paper for Currency and Abolish Gold Coins .	379
Periodic Variation of Weight Based on Index Num-	
ber	382
Conclusion	384
Summary of Plan	384
The Essential Point	385
A Fixed Standard Would Prevent Involuntary Theft	387
After-war Significance of the Plan	388
If We Miss the Chance	389

XXI. THE WAR AND INTEREST RATES, BY E. W.

KEMMERER	391
The Nature of Interest and Its Importance	391
The Element of the Market Rate of Interest	392
Pure Interest	392
Administrative Expense	392
Insurance	393
Depreciation or Appreciation in Purchasing Power	393
The Method of Treatment	394
Permanent Changes Being Brought on by the War	395
The Increasing Use of Bonds of Small Denomina-	
tions Leads to Lower Rates	395
The Large Proportion of Government Bonds	396
Increased Safety	397
The Habit of Thrift	398
Summary	399
What Purely Temporary Results Will the War Bring	
About?	399
The Rise in the Rate of Interest	399
Higher Yield of Long-term Bonds	399
Explanation of Stable Rates during 1915 and 1916 .	402
Higher Returns of Short-time Loans	403
Changes in the Purchasing Power of the Dollar	405
Causes of the Declining Purchasing Power of Money	407
Influences Governing Interest Rates After the War	408
Results of Advances in Rates of Interest	410
What Should be Our National Policy?	411

XXII.	NATIONAL THRIFT, BY FRANK A. VANDERLIP	415
	Larger Aspects of Thrift	415
	Its Social Significance	416
	Thrift and Reconstruction Needs	417
	The Standard of Living	418
	The Discipline of a Harder Life	419
	The Appeal to the Consumer	419
	Fallacies in Extravagant Expenditure	420
	The Personal Aspect	421
	Psychological Aspect	422
	The National Aspect	422
	Types of Savings Institutions	423
	War-time Channels of Savings	423
	Present Incentives to Save—Individual	424
	Present Incentives to Save—National	425
XXIII.	FISCAL RECONSTRUCTION, BY EDWIN R. A.	
	SELIGMAN	427
	The Three Aspects	427
	The Debt	427
	The Conversion of the Debt	428
	The Payment of the Debt	429
	The European Theory of a Perpetual Debt	429
	The American Theory of Repayment	430
	Application to the Present Problem	430
	Reasons for Rapid Repayment of Debt	431
	Rapid Repayment Favorable to Enterprise	432
	Summary	433
	Taxes	434
	Increase of Government Expenditure	434
	New Sources of Revenue	435
	Taxes, Burden or Privilege	436
	Impersonal vs. Personal Taxation	437
	Property vs. Income	438
	Graduated Taxation	438
	Earned vs. Unearned Income	439
	Luxury as a Test of Ability to Pay	439
	Land Tax	440
	Tax on Capital	441
	Tax on Business	442
	Summary	443
	The Adjustment of Revenue and Expenditure	444
	The Relation of State and Federal Taxation	444

ANALYTICAL TABLE OF CONTENTS

xxiii

CHAPTER

PAGE

Budget Reform	444
Conclusion	445

XXIV. CAN DEMOCRACY BE EFFICIENT? THE MECHANICS OF ADMINISTRATION, BY

FREDERICK A. CLEVELAND	447
Lack of Standards Due to Lack of Competition	447
Politically We Still Live in the Eighteenth Century	448
Some of the Illusions from Which We Suffer .	448
The War Has Forced Us to Face a Real World	
Politically	449
Our First Realization of the Need for a Strong Government	450
The Mechanics of National Efficiency	450
Strong Centralized Leadership a First Essential to Efficient Coöperation	450
A Well-organized and Well-disciplined Line a Second Essential	453
A Highly Specialized Staff a Third Essential .	454
Germany's Success Due to the Use of These Three Principles	454
The Mechanics of Democratic Control over Leadership	455
Independent Responsible Inquiry, Criticism, and Publicity a First Essential	456
Control Must Reach the People	460
Restatement of Principles	460
Germany Used Only the First Three	461
Britain Left Out the Second and Third . . .	461
France Used All the Principles	461
America Has Left Out All of Them	462
The Paramount Question	462
How Our Government May Be Made Both More Efficient and More Democratic	462

ALPHABETICAL LIST OF CONTRIBUTORS

	PAGE
AUSTIN, O. P.	267
BRAND, CHARLES J.	217
CLAPP, EDWIN J.	245
CLEVELAND, FREDERICK A.	447
COLVER, WILLIAM B.	177
COOPER, HENRY E.	305
FISHER, IRVING	361
FRIEDMAN, ELISHA M.	3, 15
GILBRETH, FRANK B.	125
GILBRETH, LILLIAN MOLLER	125
HESSE, BERNARD C.	145
JOHNSON, EMORY R.	233
KEMMERER, E. W.	391
MORRIS, RAY	199
NOYES, ALEXANDER D.	39
OWEN, ROBERT L.	321
PERKINS, GEORGE W.	45
POTTER, A. A.	99
ROGERS, ALLEN	115
SCHWAB, CHARLES M.	135
SELIGMAN, EDWIN R. A.	427
SISSON, FRANCIS H.	345
SMITH, GEORGE OTIS	59
SNOW, CHAUNCEY DEPEW	279
TAUSSIG, F. W.	465
VANDERLIP, FRANK A.	415
WEHLE, LOUIS B.	153
WHITNEY, WILLIS R.	89

FOREWORD

BY FRANKLIN K. LANE

Secretary of the Interior

No man knows where we are going after the war; what will be the nature of our new society, how new it will be. The imagination of the world is naturally challenged by the largeness of the opportunity to put all things right.

The one danger of any period of reconstruction is not the inventiveness of the human mind,—throwing into the air for all men to gather by wireless new lines of thought, novel conceptions of society,—the danger is in letting go the old before the new is tested. The ship must not be allowed to drift. We must make sure that we have power to take us in the new direction before we let go the anchor. To reject tradition, to despise the warnings of history and to be superior to the limitations of human nature, is to drive without a chart into a Saragossa Sea of water logged uselessness.

But the figure of steering a ship must not be carried too far. It has its limitations because man is a growth, not a machine. The captain of the ship knows his point of destination as well as his point of departure. The statesman cannot know at what port he will arrive. His supreme duty is to bring his ship safely into a harbor, with a crew that is not in mutiny and his hand on the wheel. The state must be a "going concern."

To adapt ourselves to the conditions that will arise after the war will be a task that will also demand an ability to reject what is not needed or not fitted for utility under man's advanced conception of himself. Revolutions come, radical departures of all kinds are taken, because of a too slothful appreciation of a change in the weather. The American people are not dangerous. They are really, I believe, the safest and sanest people on earth. There is no danger whatever of their rushing headlong down a steep

place into the sea. Sometimes they may be a bit too logical and hence unnatural in their adherence to the Cromwellian philosophy of "thorough," but no people have a more perfect sense of fair play or a keener sense of humor, and the reaction from these makes for steadiness, stability, wisdom, not passion. This though is true, that their judgment must be respected, and respected in time, if things are not to go further than they would wish themselves. And this lesson conservatives must learn: The Sovereign Citizen is here!

So far as plans for making over our industrial or financial or economic lives are concerned, the commonest schemes involve too great a risk of establishing bureaucracy. To avoid the setting up of such machinery, however, unless it is vitally necessary, indispensable, seems to me the part of wisdom. The common impulse when in a tangle or a haze is to cry out, "Let us refer the whole business to a body of experts," which, to be sure, is the only way in which much of government can be handled. Yet experts, as all know, have the same capacity for imperialism, for cowardice and for subserviency as all other men. They come to wish to exercise authority and have a tendency to exercise it ruthlessly if protected from public criticism. They are also as weak-kneed as men in general before the hasty judgments and clamor of the multitude or the will of those who are politically powerful.

This Nation is ripe, not so much for any one change in its way of doing things as for an extension and a broadening of its own old way. A little Hawaiian girl told me in Hawaii that America was in the war to "help those who need help." That is our spirit abroad (not pure altruism either), and it is the sound center of our system of government at home. We shall reconstruct, build anew, for a broader democracy, in which men will learn more perfectly to work together, not for the making of a great state, but, on the contrary, for the making of more self-owned and growing individuals.

PART I

A PERSPECTIVE OF THE PROBLEM

I

THE PROBLEM OF RECONSTRUCTION IN THE UNITED STATES

BY ELISHA M. FRIEDMAN *

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An Explanation of the Opposition to Discussion of Reconstruction.—In the early part of May there was introduced a measure into the House providing for the creation of a commission to take up the problems of reconstruction. From time to time articles have appeared advocating this course. Aside from the unavoidable difficulty of distracting the national mind from the pressing task of the day and the great danger that many half-cocked schemes will be advanced by doctrinaires, some justifications may be found for the opposition to the initiation of reconstruction measures in the past year.

The underlying idea of reconstruction is the attempt to determine what new conditions resulting from the war confront us and what suitable adaptations may be made to meet them. Now the first year of the war was essentially one of preparation for its conduct. There was need for single-minded and whole-souled intensity in bringing the country to a war footing. In addition, it would have seemed folly to attempt to find out what the new conditions would be before the antecedent causes took full effect. Since the changes incident to war had not yet fully taken place,

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4 AMERICAN PROBLEMS OF RECONSTRUCTION

adjustments to peace conditions could not be investigated or applied. For the United States to have undertaken a program of reconstruction before we were well under way with our war preparations would have been as absurd as for an individual to carry a sling and a crutch in the expectation of being injured in a particular manner. The actual injury might be quite different from the expected one. It is worth while noting that neither England nor France appointed a Ministry of Reconstruction until after the third year of the war, and even Germany appointed her Imperial Commissioner for Transition Economy only after two years of war had elapsed.

It should also not be overlooked that the formulation of a program of reconstruction presupposes a study of the after-war problems in industry and foreign trade. Had we, shortly after our entrance into the war, made any attempt, however slight, to anticipate trade conditions, we might have played into the hands of the enemy propagandists, who would have seen in this measure a vindication of the German slander that this is a Dollar War and that America expects to profit out of it. The finest vindication of President Wilson's lofty idealism is the firm disregard by the country as a whole of any selfish gain to America during or after the war. Even our most biased critics must be impressed by the sincerity of our efforts, attested as they are by the intensity and the single-mindedness with which we are pursuing the common Allied goal. The fact that we do not view the war objectively is evidenced in our failure during the past year to provide an after-war program and is the most searching test of our earnest disinterestedness.

The Present Need for Taking up a Consideration of Reconstruction.—Sound as are the above reasons for not having attacked the problem until now, there is no gainsaying the fact that we are getting deeper into the war from day to day. We are mobilizing our man power, for military and related purposes. Our industry is undergoing radical transformation for the purpose of increasing our military efficiency. Our raw materials are being diverted from normal uses to the production of military equipment. Our trade routes are being radically altered. Consumption of luxuries is largely cut off, and essentials are restricted or substituted. We are raising huge loans at a rate faster

than any of our allies did. Our taxation policy is greatly changing.

Some of our soldiers have already been wounded and need treatment and reëducation. Every step further into fields of war means a greater distance to be retraced to return to peace conditions.

In addition to the internal evidences of the need for a study of reconstruction problems is the testimony furnished by the action of foreign governments. Germany established her Imperial Office for Transition Economy by an order of the Bundesrath on August 3, 1916. England set up her Ministry of Reconstruction by an act of Parliament of August 21, 1917. France, by a series of Presidential decrees and legislative enactments extending from August, 1917, onward, made provision for a study of reconstruction problems, although a commission had been at work on the narrower problem of the rehabilitation of the invaded provinces since May, 1916. But not only have the major belligerents turned their attention to the morrow of war. Russia, Japan, Belgium, Serbia, and Bulgaria have attacked the problem from various angles. Even the neutrals like Spain, Holland, Chile, and the Scandinavian countries have committees at work to study the effect of the war either on the entire economic situation or on some particular aspect of it. We should not be taking a very original course or opening ourselves to any kind of criticism if we also, at a propitious moment, set a committee to work to study our after-war problems, regardless of whether the war ends next fall, next year, or five years from to-day.

A Tentative Plan.—The first need which becomes apparent is to find out what has been done abroad. In some respects the United States bears the same relation to the other belligerents as the youngest member of a family bears to his brothers who have had a diversified experience whereby he may profit. Because our problems are so similar to those of the European countries it will be decidedly worth while to organize a small body of enterprising economists, who could rapidly furnish a summary of the foreign progress in plans for reconstruction. As a result of their findings the aims, scope, and methods of a board or committee on reconstruction could be defined. This committee on reconstruction should centralize within itself all the functions,

6 AMERICAN PROBLEMS OF RECONSTRUCTION

regardless of the fact that other branches of the government, such as the Surgeon General's Office, the Department of Labor, the Department of Commerce, or the Department of the Interior, would undertake to carry out the various lines of reconstruction activity.

The authority, as well as the planning, should be centralized in the reconstruction committee, and the responsibility thereto of the various government departments should be refocused in it.

Scope of the Immediate Problem of Transition.—While the long-range problems may without danger be postponed in treatment, the immediate problems we can ill afford to neglect. These deal primarily with the transition out of a state of war and not with any general attempt to alter fundamental conditions of the national economic life. They must be anticipated in time, so that at the end of the war we shall have a perspective and a method of treatment which will enable us to handle these problems. They include—

- (A) Convalescence of sick soldiers.
- (B) The reëducation of the crippled for new vocations.
- (C) The demobilization of the Army, of munitions workers, and of other civil employees engaged in war activities.
 - (1) The prevention of unemployment.
 - (2) The registration of soldiers by vocations.
 - (3) The demobilization by industries, a census of which may be necessary.
 - (4) The settling of soldiers on the land.
- (D) The dismantling of emergency organizations serving war purposes.
- (E) The handling of raw materials.
 - (1) The demand of foreign governments for our raw materials.
 - (2) The supply of raw materials left in the hands of the Government, including scrap.
 - (3) The unfilled orders or uncompleted contracts given for Government account.
 - (4) Our demand for foreign supplies.
 - (5) The need for the regulation of the movement of raw materials.

- (F) The transition of industry from a war basis to a peace basis. There should be a subcommittee to cover each industry.
 - (1) New uses for war plants.
 - (2) An industrial census should be taken, as was done in England, France and Germany, in order to determine what commodities can best utilize labor, plant, and machinery after the war.
 - (3) An analysis of the demand for commodities, such as structural steel and other building materials, unsatisfied during the war and accumulated for satisfaction during the after-war period.
 - (4) An analysis of the unfilled war orders for the purpose of determining what uses may be made of the semi-finished commodities in times of peace.
 - (5) The problem of the transfer of labor so as to cause minimum unemployment.
 - (6) A study of wages and prices and an attempt to furnish relief if not a remedy for the maladjustment expressed in the phrase "the high cost of living."
- (G) The restoration of normal trade conditions.
 - (1) A study of the new trade routes resulting from the war.
 - (2) The problem of the tariff and the effect of the Paris resolutions or similar impediments to trade.
 - (3) Substitutes for war exports.
 - (4) The rehabilitation needs of Europe.
 - (5) Protection against centralized buying or the secret buying away of our raw materials through agents of the Central Powers.
- (H) The restoration of foreign exchange rates to parity, so as to eliminate abnormal exchange rates, an unnecessary impediment to the easy resumption of trade.
- (I) The guarding of our gold supply and the regulation of the gold flow so as to reestablish international credit and stability.
- (J) The protection of the consumer by means of price fixing, regulation of consumption, priority, and other war expedients that may be of value in facilitating the transition.

8 AMERICAN PROBLEMS OF RECONSTRUCTION

- (K) Relief of the poor.
 - (1) Unemployment insurance.
 - (2) A civil pension list (extension of the provisions of the War Risk Act).
 - (3) Experiments in municipal feeding (as in Birmingham and Glasgow).

Some of these problems are being handled individually by various departments of the Government and without relation to any complete scheme. What is necessary seems to be some centralization of planning and of responsibility whereby the individual problems may be properly related to one another.

Scope of the Long Range or Reconstruction Problem.—In addition to these questions which at the close of hostilities will press for solution so insistently as to leave little opportunity for their calm consideration there are the broader and less urgent matters which the other nations of the world are considering and to which we should likewise give thought.

- (A) A national labor policy—a continuation of the policies designed to maintain during the war harmonious relations between employer and employed and to safeguard standards of living.
- (B) A raw material policy—to develop the national resources in the national interest, to insure self-sufficiency in a crisis, and to prevent foreign control of them.
- (C) “Key” or preparedness industries—to consider the extent of the need for and the method of establishment of industries essential to economic independence of other countries.
- (D) A national-research policy—to study the technical needs of industries, with a subcommittee for each industry.
- (E) A “trust” policy—to define the attitude of Government toward the concentration of industry and toward Government control or regulation.
- (F) A foreign trade policy—to study the defects in our present methods and to recommend means for the extension of foreign trade.
- (G) A foreign banking policy—to analyze the lack of facilities for the financing of American foreign trade, in the

light of the practice of the successful European trading nations.

- (H) A taxation policy—to study the problem of public debt and taxation, so as to formulate principles of an equitable scheme of taxation.
- (I) A consumer policy—to study the problem of fluctuation in prices and the desirability of a continuation of a scheme for fixing prices and controlling distribution.
- (J) The improvement of governmental machinery—to study the organization and functions of government so as to reveal its present weaknesses and to recommend measures to insure efficient administration of any policies contemplated by the executive or voted for by the electorate.
- (K) The Americanization of aliens—to study the method and rate of assimilation of American ideas and ideals by the foreign-born population.
- (L) An educational policy—to outline a national system of education so as to promote vocational education for the average child, to foster scientific research for the exceptional student, and to develop a strong Americanism, with ideals of public service which will make possible the execution of national policies.

THE LESSONS OF THE WAR AND OF EUROPEAN RECONSTRUCTION TO AMERICA

A. A. General Economic Staff.—The war has developed the instruments which a nation needs for the efficient conduct of the enterprise in hand. The idea of a General Staff in war time is an accepted part of the state machinery. The uses of an analogous institution in times of peace has been greatly emphasized in the European studies of reconstruction problems.²

² Other recommendations covering an international body and not only purely national ones are put forward.

In England Arthur Greenwood ("How Readjustment May Be Facilitated After the War": Ruskin College Conferences, July 21, 1916) recommends "that parallel with the Peace Congress there should be an International Economic Commission charged with formulating an economic policy for facilitating the restoration of international economic relations and the reconstruction of the world's economic system.

10 AMERICAN PROBLEMS OF RECONSTRUCTION

In England one writer³ says: "Just as in actual war we require a General Staff, with an organized intelligence department, to anticipate, consider, and advise on all strategical problems which may arise, so for the purposes of trade we shall want an organized body, whether it take the form of a Department of Commerce and Industry or otherwise, whose duty it will be to anticipate, consider, and advise on industrial and commercial matters, collecting and digesting the reports of intelligence officers in all parts of the world." A similar suggestion comes from Dampier Whetham,⁴ who suggests an economics committee or advisory council which shall be charged with supervision of the national economic development and shall recommend bounties or special tariffs, suppression of some unsuited industries, and the fostering of "key" or pivotal industries, as optical glass, chemical, porcelain, dyestuffs, drugs, and explosives industries.

In France a similar scheme is broached by Maurice Alfassa,⁵ who recommends that France establish a Department of National Economy to bring about a closer coöperation than in the past between state and private interests and to centralize and prepare economic campaigns in much the same way as military campaigns are conducted during the war. Interministerial relations should be established by an economic committee (Comité Économique or Cabinet Économique) similar to the Committee of War (Comité de Guerre), under the presidency of a minister and with the assistance of experts. The task of this committee would be to complete the coördination of departments. There should be periodical meetings of the chiefs of bureaus to consider from their various angles questions concerning several ministries.

In Germany the creation of the new Department of Economics called forth the appeal for an Economic General Staff.⁶ The body will consist of a Superior Advisory Council to deal with the larger problems of economic policies. This council will be com-

Such a commission should be as widely representative as the Peace Congress itself. It would be a great gain if this body were given a permanent existence."

³ Parker of Waddington, "Some After-War Problems": *Quarterly Review*, April, 1916.

⁴ "The War and the Nation," pp. 162, 163.

⁵ "La Préparation de l'Après Guerre": *La Nouvelle Revue*, Oct. 15, 1917.

⁶ See discussion in the *Vossische Zeitung*, Dec. 8, 1917, by Leo Lustig.

posed of representatives from various commercial bodies, from different industries and trades, representatives of shipping, of banking, of insurance, and of consumers' interests. There will be an information bureau to prepare data for the council. The writer complains that there was a lack of technical information among the high officials which led to many errors both before the war and during it. To dispel unfruitful controversy there is nothing so effective as accurate information. The economic interests of Germany require a general staff.

In our own country we have had occasional suggestions put forward along similar lines. In a paper read before the Economic Section of the American Association for the Advancement of Science⁷ Eugene Meyer, Jr., stated: "We need a national council, but not only for military and naval defense. The nation needs the experience and ability of its best citizens in the conduct of the national economic enterprise." In much the same vein is the suggestion put forward in an address by Otto H. Kahn,⁸ calling for a Board of Economic and Financial Strategy.

B. An Uninterrupted National Economic Policy.—Apparently the belligerent nations are becoming conscious of the need for a body which can frame and follow a consistent policy uninfluenced by frequent elections or subject to the unsettling control of the populace. The present administration has undoubtedly gone further than any other one in American history in setting up bodies of experts to conduct the various lines of national economic activity. The Federal Reserve Board, the Federal Trade Commission, the United States Tariff Commission, the United States Shipping Board, and the Federal Board of Vocational Education are all evidences of the soundness of the policy applied by the present administration. Some provision for joint consideration of national problems by these bodies and others that may be created could easily be put into effect and would furnish a splendid instrument for fostering our economic progress. The binding tie between these boards might be a body—shall we call it the "Elder Statesmen"—composed of our ex-Presidents. Democracies indeed are wasteful. Citizens prepare themselves dur-

⁷"On Some After-War Economic Problems," read Dec. 29, 1916.

⁸"National Efficiency," before the Bankers Club of Chicago, Jan. 12, 1918.

ing almost a lifetime for the supreme task of the Presidency, they gather experience therein at a cost to the nation, and then they are turned adrift, apparently to vindicate the democratic character of our institutions. A body of ex-Presidents with advisory powers would be a steadying influence in the prosecution of a line of conduct which would redound to the national good. The appointment of Mr. Taft on the Labor Board is a step in this direction.

It is a peculiar commentary on our government that we set the lower limit of age in fixing the prerequisites to civil office, whereas in military service, where the test of efficiency is keener and more plainly indicated, we set the upper or age limit in retirement from office. If the national economic policy is to be characterized by youthful imagination and aggressiveness it will be necessary to balance the wisdom of age by the buoyancy of youth.

As government grows in complexity it transcends the capacity of the average congressman to understand it, to say nothing of directing it. Years of oratory have been wasted in fruitless discussion of facts and policies which could be readily determined by a small board of experts in as many months. The march of science marks the retreat of the unknown and the supernatural. Similarly, the progress of boards of experts—in trust matters, for instance—will mark a beneficent decrease in the debatable area in legislative halls. Arguments can be interminable and indecisive only when the facts are indefinite or not clearly presented. Our national economic policy can best be fostered by taking out of the hands of the legislature functions which properly belong to scientific investigators. "The legislator is neither chemist, nor physician, nor physicist, nor economist, nor moralist, but all of these in some degree, and something more as well, in the sense that he must gather to a focus the complex calculus of probabilities, the data for which are supplied by the separate investigators."⁹

C. The Tools of Democracy.—This question brings us to the larger problem of political introspection. To solve our economic problems, we must look to the methods and machinery which we depend upon to accomplish the aims. Just as the crew of a

⁹ W. S. Jevons, "The State in Relation to Labor," p. 29.

rain before a journey tests the engine and trucks, so the nations of the world at the beginning of a new era are examining every political assumption and every political institution. We have too long taken our government, as it stands, as a matter of course. This is the empirical attitude. The scientist either in the laboratory or in the field tests his instruments periodically to detect variations of error or maladjustments of parts. In the realm of politics the more precise and more evident methods of science will be of value in calibrating the tools of democracy and therefore in facilitating the accomplishment of its aims. There is need for an enlightened and discriminating electorate, the need for an educational qualification for suffrage, both in general and on the issues of a campaign. Our legislation should originate in bill-drafting bureaus, where all the facilities of legislative research are available. The functions of the representatives of the people is not to formulate legislation but to mold it by criticism. The methods of successful management in business are the methods that a government must apply, even though the stimulus of a profit and loss statement be lacking. The aims may be different, but the principles of administration are the same. The progress of democracy depends directly upon the suitability and effectiveness of its tools.

There is no better way of perfecting the instruments of political action than by a study of comparative government. That the present administration will stand out as an historic one in the field of domestic affairs is due in no small measure to the fact that President Wilson is a profound student of politics and comparative government. By looking to the machinery which other nations use to accomplish their purposes, by noting its defects and its virtues, the electorate may improve the mechanism which it creates to express its will.

To set up our national economic goals, as well as to develop the proper instruments for their realization, it is necessary to save the brain power of the nation as a driving force. In the universities the nation has an unused asset. If it is true that what the university thinks to-day the nation executes to-morrow, it is particularly necessary that we utilize to the full the potentialities of achievement of our schools. Some of the economists and students of politics who have been pressed into the government service have splendidly vindicated the schools as the

14 AMERICAN PROBLEMS OF RECONSTRUCTION

veritable cornerstones of democracy. If some arrangement could be perfected it would be well to have members of the faculties of political and social science spend their sabbatical years in the government service. The effect would be twofold. It would bring a new point of view, a freshness, and an inspiration to the government departments. As an equally important result it would enable the students to receive a living message from their teachers, whose thought would direct them to the service of the nation.

II

PRINCIPLES OF RECONSTRUCTION IN EUROPE

BY ELISHA M. FRIEDMAN

Literature of Reconstruction.—To an observer reading the current journals in England, France, or Germany it would seem that the dominant currents of thought flow along the lines of reconstruction. He would be impressed with the spirit of resolution and of purposeful planning of the future of nations. The magazines abroad contain fewer articles on the war than on the problems of peace. The universities particularly seem to be seeking the way that the nation will follow to-morrow. The *Round Table*, the *Economic Journal*, the *Athenæum*, and the numerous other English reviews are forums for the discussion of the after-war problem. And so in Germany does the same hold good—not to burden the reader with the resonant multi-worded titles of their journals. In France also this has been true, though to a lesser extent. The same tendency is evident in the book world. A recent number of the *Athenæum*, for instance, gives on one page the announcement of nine books on different aspects of reconstruction.

At the date of this writing there has appeared no single comprehensive treatment of the subject either in book or magazine form in this country. The *New York Times* published some articles in a series, treating chiefly, however, the international and diplomatic aspects of the subject, over which we have not the sole control. The Carnegie Peace Foundation, under able leadership and with the aid of scholarly contributors, is undertaking the study of the economic effects of the war on the United States. The National Foreign Trade Council since the 1914 convention has been meeting annually to discuss certain aspects of the sub-

ject. Sporadic efforts in the same direction have been made by the National Association of Manufacturers, the American Exporters' Association, and the Efficiency Society. As for the Government bureaus, there have been some illuminating publications issued by the Department of Labor and the Department of Commerce, as well as occasional statements emanating from the Federal Reserve Board. The official publications are evidences of a silent and unobtrusive activity whose nature seems to be determined by the universal desire not to permit any diverting influence to retard the prosecution of the war.

Justification for the Study of the Problem.—The United States has been engaged in war for a year and has not yet reached its maximum of effort. It is therefore advisable that nothing be said or done that would divert the national mind, which it was so difficult to concentrate on the prosecution of the war, from pursuing this goal single-mindedly. However, life is complex and refuses to be routed over a single track. True enough, a war motto reads "The Germans won't wait," but this is merely a particular instance of the general rule that the world won't wait. The doubt as to the future and the attempt to anticipate after-war conditions have been in the thought of individual business men. Many of them feel that the after-war problems can be best met by preparation, that the nations of the world are like runners in a world race whose pace will be set by those that plan their future, and that those that fall behind may be the ones that were late at the start.

However, the problem transcends the scope of commerce and exceeds the power and purposes of individuals. The needs and the difficulties of planning for the to-morrow of peace were nowhere more clearly stated than by Prof. W. R. Scott in his "Economic Problems of Peace After the War"¹:

"Modern commerce finds its supreme expression in the anticipation of the future. The application of science to industry tends to lengthen the time of production, while on the other side what is produced is usually both greater in volume and more efficient in character. The protraction of that production which seeks a world market makes the forecast-

¹ "The Surprises of Peace," pp. 62, 63.

ing of the demand, which is not yet in existence, a necessity in almost all important industries. The producer must create from within his own mind the vision of those conditions with which he is concerned as they will be, not merely in the future but at a fixed date in that future. It is necessary for him to divine how forces, which he cannot control, will behave, and at the same time he must coördinate with these forces other causes the action of which he can direct to a greater or less extent. Stated in this abstract form, the practical problem seems to be one of remarkable difficulty, but in normal circumstances it is accomplished with sufficient general precision. The task of the producer is facilitated by the continuity of events, where the changes which happen are regular and move in certain directions which can be estimated. Many conditions which exert great weight in the ultimate effect remain relatively unchanged, and in normal circumstances these may be neglected in framing forecasts. But in the abnormal state of war all this is changed. Not only do new and highly uncertain phenomena emerge with disconcerting suddenness, but the causal values of old conditions change. And the function of judging and laying plans for the future is rendered more difficult by the fact that the higher forms of commercial skill have remained essentially an art, and thus the process is largely instinctive, as it is almost inarticulate."

The need for reconstruction is being voiced on all sides in Europe and is only beginning to be felt in this country. Whatever progress we made during the first year of the war was due in a large measure to the compulsory preparation which the previous demands of the Allies imposed upon us while we were neutral. There is no corresponding stimulus to peace preparations unless we find that stimulus in our own common will. The distinction is clearly stated for England by Sidney Webb: ²

"The difference between the outbreak of war and the outbreak of peace is that we did not expect the former and we do expect the latter. War sent the whole nation scur-

² Fabian Tract No. 181, "When Peace Comes: The Way of Industrial Reconstruction."

rying round like scared rabbits trying to prevent dislocation from spelling unemployment and starvation. The Declaration of Peace will entail an even greater dislocation of industry and of wage-earning than did the Declaration of War. If we let it come upon us without adequate preparation, it will be much more difficult to deal with and much more socially disastrous than anything that we have yet had to face. It will create much more discontent and angry feeling, for thousands who would cheerfully die for their country in the stress of war will furiously resent going hungry in time of peace. But we can see the trouble coming, and we can, if we choose, prepare for it."

In the same vein is an article on some after-war problems published in the *Quarterly Review* for April, 1916, which says in part:

"The war took us unawares. Whether it was probable or improbable only those who had access to official information were in a position to judge, but no one will contend that the policy to be pursued or the measures to be taken to deal with any one of them had been adequately thought out or matured. The war may have been improbable, but peace will certainly come, and with it a number of problems which, if dealt with by impromptu or opportunist measures only, may easily entail on our posterity calamities even greater than those entailed by the war itself."

Of similar import is the statement of Lloyd George:

"The mistakes that we might make through entering on peace without preparation would be even more disastrous than the mistakes you might make by entering into war without preparation. The things that you will do will be more permanent; you will give direction and shape to things and though the world will [be] very molten at that moment, it will cool down very quickly and the shape which you give to it will remain. And if your mold is not the right one, you cannot possibly set things right without another convulsion that will break it. . . ."

PRINCIPLES OF RECONSTRUCTION IN EUROPE 19

But not alone in England have these sentiments found their spokesmen. In a series of articles Maurice Alfassa³ writes:

"There is uncertainty about the future, and therefore government activity must be uncertain. Although the situation is difficult on account of the complication in finances and the unparalleled changes in the economic activity of all peoples, those in charge of public affairs should examine the situation in a unified way and not by fragments. A national official organization should attempt the solution of the problem.

"A commission, a cabinet office of the government, to obtain the collective views, to develop resources, to manage production, and to adjust the foreign relations of French citizens is a necessity. A short-sighted policy not only fails to solve its daily problems, which are increasingly aggravating, but places France in a position of manifest inferiority as compared with its Allies, who have begun to prepare for their economic reconstruction."

In Germany war-time activity in reconstruction has been keenest. One of the leading economic publications⁴ prefaces an article, the first of a series on "Demobilization and Reconstruction," with the statement that the danger of unpreparedness for peace is as threatening as unpreparedness for war. And in the same vein another writer in the same journal⁵ tells us:

"The longer the war lasts the less likely is the return in our day of the unrestricted freedom of the individual. As the war goes on it becomes impossible to remove the traces of the organization of the war economy, and what may have been a necessary measure during the period of transition may become the cornerstone of the German economic structure. In the new conditions which will arise it is necessary to have a visible plan. If one adopts only those measures which become necessary from day to day there will be a

³ "L'Exportation": *La Nouvelle Revue*, Nov. 13, 1917, and "Problèmes d'Organisation Économique": *Idem*, Sept. 15, 1917.

⁴ *Europäische Staats- und Wirtschafts Zeitung*, Dec. 15, 1917.

⁵ Kurt Singer, "Some Basic Questions of Reconstruction," Oct. 20, 1917.

contradiction between the general plan and the individual measures leading to uncertainty and friction. All the difficulties and faults of the war are due to the fact that we did not think through our problems in a connected way. Therefore our solutions are incomplete and disconnected. It will be necessary not only to do the right thing for the moment but also to act with a clear purpose and in coördination so that all opposition will really be on the basis of class interest. The economic and financial policies of the Empire must be carried out by strong hands along unified principles so that in every measure there appears purpose, coördination, and responsibility. Only such a meaning or intent will justify the gigantic revolution which will change the features of our economic life for perhaps a hundred years."

We in the United States have not been entirely indifferent to the need for facing the after-war problems. Bankers and publicists and far-seeing business men have been expressing their views on this subject. In an address⁶ on "Some After-War Economic Problems," Eugene Meyer, Jr., called attention to the fact that both England and Germany had taken time by the forelock and instituted bureaus "to find work for the soldier, credit for the manufacturer, raw material for industry and to stabilize their foreign exchange."

And in much the same spirit William S. Culbertson, of the United States Tariff Commission, writing of its work,⁷ makes a plea for preparedness for peace:

"Apart from the particular measures considered abroad, with which we are not directly concerned here, the activity of foreign countries in the study of the problems of reconstruction is alone a sufficient justification for similar work in this country. It is proper that we should regard the winning of the war as the supreme duty of the moment. But we cannot wait until the end of the war to consider the complex problems which will then confront us. The imperative need of economic preparedness now will be as evident

⁶ Delivered before the American Association for the Advancement of Science, Dec. 29, 1916.

⁷ *North American Review*, January, 1918.

when hostilities cease and trade and industry attempt to return to the normal conditions of peace as military preparedness is to-day."

One's attitude toward the need for the study of reconstruction depends not only on the facts but also on the personal equation. A good many men are either indifferent or opposed to its consideration. But the reason is not far to seek. More often than not they are the over-worked men who are devoting from twelve to sixteen hours a day to facilitating the prosecution of the war. Some of them are old men or conservatives in outlook. Others are empirical thinkers. And finally you have those men "who have not come to themselves," as President Wilson puts it, and therefore cannot see over and above the immediate task, cannot behold its relation to a time beyond or to the larger scheme of things. However, the business man with all his fortune staked upon the correct interpretation of the future, the statesman with far vision, the anxious patriot who feeling the call of the national spirit has been unable to give it adequate expression in other directions, the sociologist whose standard of time is not the year but the generation, whose unit of action is not the individual but the group—all of them feel the advisability of making some attempt to foresee the future and to prepare for it.

It is absurd to assume that when the war ends we can return to our accustomed tasks or to pre-war conditions, even though we may have bound ourselves to do so. The longer the war lasts the further do we depart economically and politically from the standards of August, 1914, and the greater is the gap to be bridged. For, as W. R. Scott says: ⁸

"Emergency measures presuppose a static conception of industry. The arresting of some social function does not mean that it can be isolated so as to resume its previous activity when the war has ended. During the period of suspension the process of adaptation to environment continues, and it is not improbable that the suspended function will be released in circumstances which will be greatly changed. In the words of Burke, 'War never leaves where it found a nation.' It is said that James I called for his old shoes because

⁸"Economic Problems of Peace After the War," pp. ix, 31, 72.

they were easiest, and many of us face the upheaval of war with old ways of thinking, because they are easiest, and we have so long been accustomed to them. The trained faculty of economic analysis can be applied to the new circumstances, as to the old, not by using former generalizations, but by an examination of the fresh phenomena with a view to ascertaining their real meaning, that being precisely the element in the situation which is liable to be apprehended wrongly by the casual observer. And yet it will be impossible to wait until the final, normal industrial life has been reëstablished. Here the element of time in all practical forecasts is of outstanding importance. It is not only necessary to frame a moderately accurate forecast of conditions that are to come. As has been finely said, the best practical minds 'should have ears to hear the distant rustling of the wings of Time. Most people only catch sight of it as it is flying away. When it is overhead it darkens their view.' "

The reconstruction problem of a nation cannot be treated piecemeal. It is an organic problem and can be approached only as a unit. Demobilization of the army and of civilian war workers implies that industry is ready to receive them; this in turn assumes that the raw materials are at hand, that exports are possible, that foreign exchange anomalies have been rectified, and that the financial means are available. No one phase of the problem can be detached from the rest, for the elements which we arbitrarily set up are in reality the expression under different conditions of the same fundamental maladjustment between the present war basis of industry and the new conditions which will supervene upon the advent of peace. While we may for convenience departmentalize the problem and allocate its parts to a sub-committee, yet if we are to envisage all aspects of the problem we shall need that degree of coördination which can come only with a central authority to deal with the problem.

Future Conditions to be Faced.—A traveler isolated from civilization since August, 1914, would upon his return find an unrecognizable world. And so also does he whose objective view permits a calm analysis. The war has displaced the foundations

of our civilization, altered the relation of individuals to society, changed the currents of communication and of trade, accelerated the progress of some nations and arrested that of others. The details of the effects of the war are given elsewhere. Viewing it in the large we find that man power, the instrument of production, has decreased and been impaired in all the belligerent countries. A large population of cripples and invalids has been added as a charge on the income of a less productive generation. Women have been drawn from the homes into the factories. Unorganized, unskilled labor has under the stimulus of the war and with the aid of automatic machinery supplanted the highly skilled and equally highly organized craftsmen. Labor, scarcer than usual, is being paid unheard-of wages. The cost of living has risen to peak levels. Humanity has developed new needs and scrapped its old ones. The relations of demand and supply have been disorganized and realigned to war conditions. New commodities are being produced to replace products previously imported. New industries have grown up and old ones abandoned or restricted. There is a shortage of goods in some directions, and there will be a huge surplus in others when the war ceases. Machinery is used hard, permitted to run down, and insufficiently repaired. Old trade routes have been shut down and new ones opened. The volume of trade has been shifted along new lines and trade balances reversed in some cases and intensified in others, producing the effect of a tariff. The resulting foreign exchange rates have altered in bewildering complexity. Foreign investments have been wiped out, and the resulting invisible influences in the balance of trade, favoring the investing countries of Europe who had adverse trade balances, are no longer operative. Fees for insurance, shipping, international acceptances, and other banking transactions, as well as brokerage fees on the principal exchange centers, all have been suspended. National debts have increased as high astwentyfold in various countries. The interest on the present debt in many cases exceeds the total principal before the war. Taxes have risen in proportion, credit is scarce, interest rates are high, the habit of huge appropriations has been formed. There have been tremendous and inconceivable losses—the destruction of property, amounting to well over ten billion dollars, the expenditure during the war of over a hundred billion dollars to date, and the loss of the annual productive

income of the belligerents. New methods of financing have been evolved. New sources of revenue have been ferreted out to meet this gigantic program of organized destruction. In the face of these conditions both the structure and the functions of government have been amplified and altered. Individual rights have melted away before the urgent demand of struggling nations. The individual has been limited as to income and as to expenditures: his consumption is regulated in quantity and kind. New habits have been cultivated in food, in dress, and in economy. Individual initiative, the mainspring of civilization as we have known it, has been repressed. Some nations have fallen in prestige; others have risen. Human nature, the very substance of humanity, as well as its product, civilization, has been transmuted. The mere cataloguing of these changes calls forth despair in some hearts and bewilderment in others. The world cannot continue on its present basis and it cannot return to its former. Whither are we headed? Organized study alone can tell us.

Some Definitions.—Reconstruction has not the same scope or purpose in all the countries of Europe. In France the ruined districts are the pressing incentive to study the problem. In Germany it is the scientific attitude of mind and the commercial spirit of discounting the future which compel the anticipation of peace. In Great Britain it is the consciousness of slow but steady retrogression in national prestige before the war as a result of a selfish policy of labor and a blind individualism of capital. The prevalence of sound political thinking in England is the mainspring of the reconstruction program.

With France the purpose of reconstruction is a physical restoration of her territories. In Germany it is the desire to continue her race for a place in the sun, which apparently means to her ruling classes an eclipse of the world. In England it is the wide-felt desire, now aroused after hysterical appeals for two years, to regain her lost supremacy over her nearest followers in trade. The scope of reconstruction varies. Basically it means the reparation of the ruins inflicted by the war. But not that alone is contemplated. Many needs which had been crystallizing for a generation have by the exigencies of the struggle been impressed with a clarity of definition. And finally the war has brought into evidence many needs which in the ordinary

course of peace might have waited decades before being sensed by mankind.

The Problem.—There are three stages in reconstruction, whatever be the country involved. First there comes the period of transition from the present state of war to a state of peace. This involves the demobilization of the army and of the civilian workers in munition plants and other war industries, the withdrawal of women from industry in so far as they do not choose to remain, the proper utilization of raw and scrap materials of war, and a discontinuance of the methods, organizations, facilities and policies of waging war. This phase is best denoted in the title of the Office of Transition Economy,⁹ organized in Germany on August 4, 1916.

The next step in the large program is that of rehabilitation. The devastations of war will need to be repaired. Factories will have to be transferred to new uses demanded by peace needs. Manufacturing facilities and transportation structures and equipment which had been neglected and overworked will have to be repaired or replaced. The invalids and cripples will have to recuperate and be retrained for partial use at least. Social unrest will have to be anticipated and relieved by foresighted policies.

And finally comes the period of reconstruction proper, during which humanity hopes to live on a higher plane. This is the period in which the long-range needs are expected to find their fulfillment. The development plans of each nation for its industry, its shipping, its finances—in short, for the complete social life—are framed for the period of repose and security which is hoped for and which apparently must follow as a consequence of the exhaustion of the nations. It is the sobering period after the orgy of intoxication of the Prussian. This program in its last stage is best expressed in the title of the Ministry of Reconstruction, established in England August 21, 1917.

The Nature of the Present Period.—This is a unique phenomenon, this planning of the nations for the aftermath of war. It is but another evidence of the increased social self-consciousness, which, characteristic effect of all wars, for the first time is being

⁹ Reichscommissariat für Uebergangswirtschaft.

recognized and dealt with as an objective fact. History tells of no attempts at reconstruction after previous wars before the signing of peace treaties. In most cases there was no plan, even after the woes of war had ceased wringing the hearts at home and after the surviving warriors who were willing to die for their country found themselves unable to find a living in it. The distress following the Napoleonic wars lived as a personal memory with the characters of the novels of the middle of the nineteenth century. Who can claim that the reconstruction after the Civil War was part of a plan and not the resultant of conflicting fragmentary forces that strove for mastery in the South, leaving behind a sting and a resentment which is patent to this day.

One of the results of this increased social self-consciousness is the ability to think in terms of groups, not only diplomatically and internationally but also industrially, and to perceive new purposes as well as to forge the instruments for their accomplishment. The crisis has generated an intense patriotism, a feeling of oneness, of identification with the political group whose safety or existence is threatened.¹⁰

"It was toward this object that we dimly groped when we felt in the early weeks of the war the impulses of friendliness, tolerance, and good will toward our fellow citizens and the readiness to sacrifice what privileges the social system has endowed us with in order to enjoy the power which a perfect homogeneity of the herd would have given us. . . . From homogeneity proceed moral power, enthusiasm, courage, endurance, enterprise, and all the virtues of the warriors. The peace of mind, happiness, and energy of the soldier comes from his feeling himself to be a member in a body solidly united for a single purpose."

This social self-consciousness generated by a crisis finds expression in a critical self-analysis, a searching of the inward parts, a greater mobility of the national mind, a readiness to discard old habits and to form new ones, a susceptibility to national appeals. As evidence in support of this sensitiveness of the national mind one need but look to the campaigns for food saving,

¹⁰ F. W. Trotter, "Instincts of the Herd in Peace and War," pp. 144 and 146.

for thrift, for bond buying, and for daylight saving. Human nature is being altered in the stress of war. The very substance of civilization is being transmuted.

"Not infrequently the war has revealed that standards [of living] were wasteful in themselves and that the satisfactions they yielded were vastly overrated. Now the opportunity has arisen to contrast the old standard with a new and modified one, and in terms of utility the comparison has not been found to favor the former. It is still not uncommon to see elderly people who in their youth were the younger members of families which had been brought up in the 'hungry forties' exercising numerous small economies. The continuance of these practices through two whole generations shows the remarkable persistence of habits [formed in a crisis]." ¹¹

The war has affected not only the psychology of peoples but equally profoundly their social relations, national and international. Many a gross injustice and maladjustment, recognized as such, was perpetuated in the social organism by its relation to other elements which could not be disturbed without endangering the common welfare. In much the same way the unchanging uniformity of peace failed to expose to the light many of the hidden centers of friction whose troubling effects took form in phenomena of unrest and uneasiness which characterized recent years. But the war has fundamentally disarranged human relationships. It has endangered, far more than any individual revolutionary influence, the very structure of civilization. Further, it has revealed to the keen gaze of a critical age the hitherto deep-seated and overlaid sources of social disturbance. The coming of peace places upon us the duty to rebuild a new edifice, a new system of living. The events of the war charge us with the duty of scrapping those structures of the social organism which have ceased to function, as they impose upon us the duty of guarding its major portion which served it so well in the past and of incorporating the new elements which have proved serviceable in the test of war.

That profound changes are taking place before our very eyes

¹¹ "Economic Problems of Peace After the War," p. 92.

is the sentiment of men who have every reason to be conservative in their judgment. Expressions abound in all the countries of Europe of the fact that civilization is molting its shell—is passing through a period of transition to a new order. In England we can hear Sir Edward Carson telling the British Empire Producers' Organization: "Do not imagine that there is no revolution going on in this country, and do not imagine above all things that there is not a revolution going on in the Empire."¹² In the same vein one reads: "A silent economic revolution has taken place during the last few years, although we may refuse to recognize it."¹³

We learn that in Germany Walter Rathenau, president of the General Electric Company, entertains similar views. His statement, scholarly and profound for a manufacturer, comes from his book, "The New Domestic Economy."

"What is this event, the waves of which are breaking around us? We call it war because it has the form of international war, because the convulsed nations are openly and apparently struggling in air, water, earth, and fire. Coming generations will recognize it. What we are experiencing is a revolution of the world, the volcanic upheaval of the mighty burning lower strata of the abode of mankind. It is not taking place in the disorderly form of a mass uprising with pikes and scythes, as its early prophets thought. That would have been of small account and would not have thrown the world from its axis.

"Made deaf and mad by their ambition, intoxicated by the last and highest distillations of the old order of things, trembling with nationalism and imperialism, nations hurled themselves upon nations in the splendor of their state and military orders, completely equipped by their industries and sciences, with the fury and the grief of their souls and hearts. They believe they are fighting for rulership and existence. But they are fighting a battle the origin of which nobody understands and the objects of which have subsequently to be sought with monthly statements of corrections.

¹² *Journal of Commerce*, Nov. 23, 1917.

¹³ Uriel D'Acosta, "Peace Problems in Commerce and Finance," p. 85.

"In reality, however, the old economic order is burning down, and the time is drawing near when the old foundations of the social order will catch fire."

Although we have not been exhausted by the war, as Europe has, and our foundations have not been shaken, as hers have, and although we have not been as highly industrialized or troubled with a dense population of industrial workers whose presence is a continual reminder of the maladjustments of society, yet we hear similar voices in our own country. Charles M. Schwab aspired to prophesy when he said:

"The time is coming when the working classes, the men without property, will control the destinies of this world of ours. We must look to the workers for the solution of the economic conditions now being considered."¹⁴

Under the destructive forces of this great war the foundations of society are trembling, but it requires a sensitive mind, attuned to mighty harmonies, to register the rumblings which are threatening the established order.

THE DANGERS OF THE PERIOD

A. The Lack of Restraint.—The vast possibilities that liberals see in the present situation are more than matched by the grave dangers of the period. Many a hospital case that has survived serious illness has been killed in the convalescence by the unwisdom of the attending physician. Organisms, whether they are biological or social, need protection against radical treatment during periods of rapid development. It is the recognition of this fact that has called forth the hygiene of adolescence. The period of molting in the lower animals is an especially critical one in which nature seems to have provided a protection in the hiding instincts of the organism. Allowing for the error inherent in analogical reasoning, we may safely say that the program of social reform may lead to reaction if its course is not wisely guided. The unrestricted power of the mob after the French Revolution led to the dictatorship. The unreasoning insistence on an

¹⁴ *N. Y. Tribune*, Jan. 25, 1918.

immediate equitable distribution of wealth in Russia has found its sequel in an unfortunate anarchy, which is the fear and anxiety of those who hope for democracy. The wisdom of the social reformer consists in knowing where to draw the line. The restraining of the spirit of a radical and fluid period is as much to be encouraged as the breaking down of prejudices and the overcoming of the inertia of a static and an unprogressive age. It is the thinking minority that must supply the balancing element which is necessary to maintain the stable equilibrium of society.

B. National Hysteria.—The American observer of European conditions has the advantage of freedom from personal error and of objectivity. In viewing the mental attitude of the Englishman, for instance, we are struck with the hysteria that seems to prevail. Not only are there multitudinous schemes put forward and amazingly peculiar projects advanced, but writers who before the war saw things calmly and in their true perspective now write of "eclipse or empire," "the awakening of an empire," "unity or fragmentation," "plan or failure."

The staid author of the series in the *London Times*, entitled "The Elements of Reconstruction," also fails to see true when he offers the two extreme choices. "In this time of reconstruction there are two entirely divergent ways, one leading straight to Britain's last muddle and the other to an Imperial renaissance. But indeed the future of the Empire is now either one whole, one plan or . . . failure and fragmentation."¹⁵

The emotional appeal seems to be too much in evidence. There is an excessive willingness to listen to rumors of remarkable achievements of the enemy or of rival commercial powers and an exaggerated fear, all of which has an unsettling effect on public opinion and on the currents of thought. An entire nation seems to have worked itself into the infantile state of mind which listens so eagerly to the story of Chicken-Little, who, having seen the sky fall down, repeated the tale to Ducky-Lucky, who in turn spread the news to Henny-Penny and so on to Turkey-Lurkey and to the rest of the barnyard folk, whose fears were finally dispelled upon the reappearance of the sun. True enough, we have been instructed concerning the origin of this mental state of

¹⁵ Pages 40-44.

a nation.¹⁶ And yet we find one author who gravely warns Englishmen of the enormous progress America is making in her after-war plans,¹⁷ adducing as his evidence stray remarks from convention addresses of Mr. Vanderlip which are isolated and shorn from the context. It is much to be hoped that we in this country will not lose our balance or perspective in envisaging our national problems.

C. National Indifference.—Rather is it to be feared that our national indifference will again be dominant and that we shall be dull to the profound changes both within and without our political life. In fact, our national psychology has been that of youth, which is indifferent to the morrow, which postpones the day of reckoning, lacks foresight, is never introspective, is overconfident of ability to meet emergencies, is lavish in its expenditure of energy and material, is exuberant in judgment, and exhibits poor coördination of means to ends. The woeful contrast between the overnight interval after which Mr. Bryan expected one million men to rise at dawn fully equipped for war and the one year which necessarily had to elapse in bringing the gigantic national organization on the road to fighting strength is merely a recent illustration of our habit of mind. But our national maturity has been hastened as a result of the vast burdens which we met successfully as a neutral state. Our economic maturity has been manifested in many ways. Our mental development as a nation will become evident if we discard our usual attitude of indifference toward critical conditions. We shall then have attained our social maturity.

D. Difficulty of Arousing the National Consciousness.—In spite of the fact that there was a real and tangible danger in our state of unpreparedness for war and that the fear motive is easily roused to action by terrifying pictures, our leaders experienced great difficulty in arousing the nation to the sense of its perils and to the need for self-defense until the measures of Teutonic iniquity had run over. With the same national indifference to our large problems and with the lack of any basic instinct to

¹⁶ F. W. Trotter, "Instincts of the Herd in Peace and War."

¹⁷ J. Taylor Peddie, "A National System of Economics," and also in "The Relation of Exports to Imports."

32 AMERICAN PROBLEMS OF RECONSTRUCTION

which to appeal, a campaign for economic preparedness must fall flat. Our hope, however, lies in the greater sensitiveness of the social mind which has been one of the fortunate developments of the war. Whether we will it or not, the world moves on. Even if our population refuses to behold them, momentous changes will take place. It would be national folly for us to attempt to delude ourselves out of the need of at least studying the problems, as it would be also for us to express irritation that other basic questions are scheduled for us when our present great effort of winning the war culminates favorably. Life is complex. The distinction between success and failure in life consists in adjustment to or neglect of environment.

E. Profusion of Fragmentary and Impractical Efforts.—Not less great than any of the above perils is reliance on fragmentary efforts, elicited by the exigencies of the moment. A series of such measures of crazyquilt pattern and often at cross purposes will not solve the problem. What is to be avoided is accident posing as design, patchwork as a proxy for purpose, isolated reactions as a substitute for a comprehensive plan, and inertia parading as a policy.

One of the phenomena of war time is the strength of the appeal of the herd instinct. Those in active government service, civilian or military, derive satisfaction in responding or giving expression to its appeals. Any suppression of this motive in the case of the sensitive members of a nation results in its perverted expression¹⁸ in unsolicited aid to the group. The innumerable anti-submarine devices, from drying up the ocean to destroying submarines by means of bomb-weighted fishhawks, afford a typical example of

¹⁸ "It must surely be clear that in a nation engaged in an urgent struggle for existence the presence of a large class who are as sensitive as any to the call of the herd and yet cannot respond in any active way contains very grave possibilities. The only response to that relentless calling that can give peace is in service; if that be denied, restlessness, uneasiness, and anxiety must necessarily follow. To such a mental state are very easily added impatience, discontent, exaggerated fears, pessimism, and irritability. It is not suggested that these eruptions of discontent are due to any kind of disloyalty; they are the results of defective morale and bear all the evidences of coming from persons whose instinctive response to the call of the herd has been frustrated and who therefore lack the strength and composure of those whose souls are uplifted by a satisfactory instinctive activity." F. W. Trotter, *op. cit.*

this principle, and so in our peace programs prophecies and policies will be indulged in and offered without number. Unaware of the folly of anticipating too distant a future or planning for it in too great a detail, there will be those who people the mists of the morrow with figments of the imagination. There will be a superabundance of schemes and a danger of over-reforming a tired and unwilling world, which has been exhausted by the great conflict and dulled in its power of rapid adaptation. A runaway civilization is in need of brakes.

"The quickened mental apprehension which usually follows a great war cannot be confined to the removing of social and industrial functions which have survived their usefulness. It is at once critical and constructive. And the criticism is applied widely. Thus there is at least the danger that methods and institutions may be displaced in favor of others which prove in the end to be not better but worse. And so, while there is gain in the hastening of improvements and reforms which would otherwise have been long delayed, at the same time there is all the wasted effort of the failures which result from overdriving the chariot of reform."¹⁹

There will be errors in judging the elements of sound reconstruction policies, notably in disregarding the time factor, in misjudging the social instruments of reconstruction, and in overrating adaptability of human nature.

"There is no recognition of that fundamental principle of statecraft—new social classes cannot be suddenly created."²⁰

Though our eyes may be on a distant goal, our feet must be on the ground and progress must be related to tested experience.

THE AIMS OF A RECONSTRUCTION POLICY

In a comparative study of the reconstruction schemes of the various countries of Europe one is impressed with the liberal tendency on the part not only of labor leaders but also of con-

¹⁹ "The Economic Problems of Peace After the War," p. 75.

²⁰ "The Elements of Reconstruction," p. 67.

servative statesmen and of the propertied classes. Apparently liberalism is the keynote of the age. Men who saw no further than the morrow are now taking the long look on social problems. Their views extend beyond their own interests. There is on all sides a confession of defect in the institutions of society and a desire to mold them in conformity with a consciously held view. Society has not only set up its own goals but is consciously striving to realize them.

"In the year 1915 it is, unfortunately, in no way necessary to enumerate the evidences of the confusion of cruelty, the waste, and the weaknesses with which human society has been brought to abound. Civilization through all its secular development has never acquired an organic unity of structure; its defects have received no rational treatment but have been concealed, ignored, and denied; instead of being drastically rebuilt, it has been kept presentable by patches and buttresses, by paint and putty and whitewash. The building was already insecure and, now the storm has burst upon it, threatens incontinently to collapse. . . . The method of leaving the development of society to the confused welter of forces which prevail within it is now at last reduced to absurdity by the unmistakable teaching of events, and the conscious direction of man's destiny is plainly indicated by Nature as the only mechanism by which the social life of so complex an animal can be guaranteed against disaster and brought to yield its full possibilities. A gregarious unit, informed by conscious direction, represents a biological mechanism of a wholly new type, a stage of advance in the evolutionary process capable of consolidating the supremacy of man and carrying to the full extent the development of the social instincts. . . . Socialized gregariousness is the goal of man's development. A transcendental union with its fellows is the destiny of the human individual, and it is the attainment of this toward which the constantly growing altruism of man is directed."²¹

In a consideration of the aims of reconstruction it is necessary to bear the psychological element in mind. Many of the pro-

²¹ "Instincts of the Herd in Peace and War," pp. 161, 162, and 167.

grams may fade into a pious wish and are made up of the element of the eternal optimism which characterizes a virile people or individual. Failure is invariably followed by vows if hope is not lost. Misfortune is followed by resolutions if spirits are brave. A clean slate is the ideal of the rescued derelict. And now humanity, purged perhaps after its well-nigh fatal convulsions, dreams again a new dream of a better social order. Prof. W. Allison Phillips, in a recent number of the *Edinburgh Review*, points to the program of universal peace which was entertained immediately after the Napoleonic wars, of whose sublimated folly we are the unwilling satirists. In a study of the comparative reconstruction programs of Europe we must therefore take into account the personal equation magnified to a national scale. The human error must be eliminated.

On all hands we find a statement of aims. The British Labor Party has its own program. The French Socialists have likewise formulated their views. The German Social Democratic Party has its own platform. The German labor element is equally alive to the situation in its scheme. It is not the problem but the period that brings forth the resolutions and the wishes. Have we not had statement after statement with periodical revisions of the aims of the war by the spokesmen of Europe? And have we not had since April 6, 1917, an equally clear statement of our war aims, lofty, long-visioned, and based on eternal principles of justice and right? It is because President Wilson has the historical background that he has a method of approach. Because of his scholarship he has a perspective. It is not surprising that he has been accepted without question as the spokesman of the Allies. It is for this reason that it is to be anticipated that in due time there will come from him an equally clear statement of the reconstruction aims of democracy.

It is because the times are fluid, because the established order is in the crucible, that liberals have taken heart as to the future and have resolved that before the world is set again on a fixed basis, with its conservatism, its rigidity, and its prejudices, the dormant wishes of those who look for a regenerated humanity shall be heard. The reconstruction program of the British Labor Party makes it plain that it wishes to see no restoration of the old injustices of the passing order.

"The war has given us what social reformers have longed for vainly during the last half-century, namely, the opportunity of making a fresh start as far as that is possible. If we fail to take advantage of it there will be a tragic waste of a chance which occurs only once in several generations."²²

The feeling of a fresh start and a desire to find a new and a better basis is similarly expressed in England:

"The British industrial and business problem is to scrap the methods of 1850-1860 and not to imitate Germany with a copy of her 1890-1900 methods, but to go right ahead to the 1920 pattern. What that pattern should be is in its general form not difficult to say, whatever discoveries in detail remain to be made. The experiment of controlled establishments, the experiences of trusts and combines, German state socialism, the theories of Guild Socialism are all in the solution."²³

The informing spirit of the new view is the fact that changes in the industrial life, while they may have been quantitative, are at bottom qualitative: while business seems to have grown only in size it has simultaneously changed in character. Our measures to meet the new situation should therefore be altered not only in degree but in kind. The increase in size has been attended by a growth in strength and complexity of business, and it is by emphasizing the latter factors and recognizing that the former is incidental rather than essential that we can hope to seek out the proper adjustments to the changes which evolution has imposed upon an amazed social order.

"The relations of business and worker vary with the scale of the business. As the business merges into the State we pass from the question of selling hours of labor to the question of how to make the best use out of a whole life. We pass from an antagonism of buyers and sellers to a scheme for common welfare. . . . A small hundred thousand pound concern can afford to work on a narrow basis for im-

²² W. R. Scott, "Economic Problems of Peace After the War," pp. 75-77.
²³ "Elements of Reconstruction," pp. 37-38.

mediate ends. A chemical industry on an Imperial scale can, on the other hand, do things on a far wider basis, can work for larger and remoter advantages and turn its vast profits more directly to the enduring benefit of the community. It can plan such a liberal and comprehensive treatment of labor as no small employer can attempt. The minor employer deals with his men by the hour, day, or job; he has to take them as they come 'out of the unknown' to him; he is unable to treat them generously as they age; he is powerless to help their children; indeed, to do his duty in any way beyond the immediate business at hand. But a nationalized industry can see the life of labor as a whole and can deal with its own section of organized labor not through a mere string of isolated jobs, snatch-profit occasions, and petty disputes, but as a scheme of lives; can guarantee ease presently in return for energy now; and can formulate and realize big, thorough, efficient, economical, and racially beneficial schemes of education, training, selection, direction, research."²⁴

The ultimate aim of reconstruction is not increased production, nor is it a more equitable distribution of the world's goods. In the large view means and methods should not be confused with ends and purposes. This difference is more than a distinction in words: it deals with fundamentals. If we set up proximate goals as final ends we cannot direct consciously the evolution of the industrial organization, but on the contrary we and our methods become parts of a blind mechanism which now and anon will turn on itself for destruction, as it has since August, 1914.

"Progress is considered rather from the outside, and the form of the statement—the evolution of the industrial organization—is better adapted to the biological conception of animate but non-intelligent existences than to that of the effort of man with his consciousness, will, and reason. Thus we obtain something of the life history of the industrial system, but we seem to be in danger of failing to find its soul. We are shown a mere process (evolution) when in fact we

²⁴ "Elements of Reconstruction," pp. 63, 39, and 40.

38 AMERICAN PROBLEMS OF RECONSTRUCTION

are faced with a problem (the goal of evolution): the problem is not mathematical, physical, or biological, but at once intellectual and emotional. From one point of view that embodies the ceaseless striving of man to express himself in the work of his mind or of his hands. If he is organized in the sense of being a mere instrument, used as a tool by another, then so far his daily toil is something that not only neglects but is even alien to his humanity. Thus there is a lack of harmony in the human factors which coöperate only partially in the scheme of production. The problem of the future will be the harmonizing of this discord. Man is on the way to master inanimate things, but hitherto the failure has been in treating human beings too much like things. Man's place in industry is not to be mastered but to provide free and willing service."²⁵

In short, the goal of social progress is neither production nor material goods. It is a self-expression of the individual in a co-ordinated scheme. And only through self-expression can the way be found to human happiness.

²⁵ "The Economic Problems of Peace After the War," pp. 114-115.

III

ECONOMIC PROBLEMS DURING THE WAR AND AFTERWARD

BY ALEXANDER D. NOYES¹

Financial Editor of the New York Evening Post and of Scribner's Magazine; Member of the Committee on War Finance of the American Economic Association

Historic Precedents.—When one asks how many of the economic innovations and expedients of this war—some of them all but revolutionary in character, and all of them marking an immense change in the world's financial and industrial organism—are likely to be purely temporary, limited to the period of war, and how many will find permanent lodgment in that organism, the question is extremely difficult to answer. Some of the innovations of the present period were introduced in the time of our Civil War—government control of railways, for instance, and irredeemable paper; but all these turned out not to be permanent. Some were introduced during the Napoleonic wars, such as suspension of gold payments on the paper currencies and subsidies by one belligerent government to its allies. These also turned out to have been of temporary character, though it is to be observed that England's advances of money to her allies were never repaid and for the most part were never intended to be repaid.

Profound Changes of the Period.—But the outstanding fact of this present war, a consequence not only of its worldwide scope and prodigious cost but of the extreme complexity of the finan-

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cial, commercial, and economic machinery which was disorganized by it, is the far-reaching character both of the economic changes necessarily brought about by it and of the political and social changes. It is a well-worn assertion that the world which emerges from this war will not be the world which entered it. That conclusion, indeed, even if based merely on the changes wrought by the war itself, might be emphasized by remembering the very prevalent conviction among thinking men, before the war broke out, that many practices and institutions, long familiar in our social and economic system, were even then on the verge of a more or less radical reorganization. In politics this tendency was manifest in England as in America, and it is by no means impossible that the ruling party in Germany plunged the country into war in 1914 in order to avert such political and social changes.

Government Control.—Undoubtedly the most fundamental economic change which has occurred during this war has been the worldwide assertion of public control of industry by the government, and, in some cases, direct governmental administration of industry. In such fields as control or prohibition of new security issues and regulation of foreign exchange business—not to mention loans by governments to allied governments—this governmental intervention has affected finance as well as industry. The question first in importance is, how far these changes or any of them are to be permanent.

In attempting to answer such a question, under the quite unprecedented circumstances in which the world will emerge from this present war, it is possible to state only probabilities: there are few absolute certainties. To what extent, for instance, the theories of state socialism will be reinforced as practical political proposals by these wartime experiments in direct government control or administration of industry will necessarily depend in large degree on the results of such government operation—its efficiency, economy, and practical achievement as compared with results under private operation before the war. In England it has been widely asserted already that dissatisfaction is so general at the intervention and interference by the state, among both employers and workingmen, that demand for a permanent system of

the sort is moribund. But the test is by no means over, either in England or in this country.

On the face of things, it would seem probable at the moment that some considerable degree of governmental regulation of prices and of speculation in commodities (notably foodstuffs) would be permanent after the war. Even before the war there had developed a pretty strong political tendency in that direction, and the conditions which have made such regulation imperative in wartime, here as in Europe, will not disappear for at least a very considerable period after the return of peace. Some of the regulation which has been the subject of experiment in this war will quite possibly never be relinquished. The revised basis of taxation, especially as concerns the graduated burden on progressively increasing incomes, is not at all likely to be abandoned. Such altered relations as have come about between capital and labor will hardly disappear with the conclusion of the war.

The Railways.—For at least a considerable period after the war is over governmental control of railways will undoubtedly continue—in this country and in England. It has been correctly said that the problems of demobilization will be in many respects as formidable as the problems of mobilization and will equally require the exercise of paramount governmental power over transportation. Furthermore, the problems of readjusting financial relations between the railways and the Government and of bringing earnings, expenses, and wages into normal relations with one another will be of a character requiring time for their settlement. To throw the railways back into private hands with all these problems untouched would be to invite chaos. The Railway Control Act in the United States stipulates return of the railways to private ownership within one year and nine months of the conclusion of peace. But a future Congress will be entirely at liberty to rescind that proviso, and the question of permanent government operation will certainly be discussed, in and out of Congress, after the war. That the railways will in any case be surrendered to private ownership only on the basis of a different and perhaps closer governmental supervision than heretofore is very generally admitted, even by railway men themselves.

The Currency.—The problem of the currencies will confront all the nations, during many years after the war. It will be a paramount problem, especially in those European countries where the paper money is already relatively depreciated and where its retirement in quantity would inevitably reduce the general level of inflated prices. From this problem the United States will perhaps be as free as any other belligerent. But we are not likely to escape it entirely, for much of our own currency expansion has been on lines not originally contemplated by the framers of the Federal Reserve Act.

International Commerce.—In what measure governmental regulation of international trade and foreign exchange will continue after the war it is also difficult to predict—especially as it is only by our Government's extensive advances of credit here that the market for exchange on our principal European Allies has been kept from great and continuous demoralization. The recurrent suggestion of an "economic war after war," as a punishment to Germany, may not be realized; but either that policy or a policy of exclusion from trade privileges, applied to nations which should refuse to join a future League of Peace, would assume continuance of governmental intervention in the channels of foreign commerce. In any case we shall have to meet the immense and as yet very obscure problems of the changes which the war itself will have brought in the relations between the world's great markets. The character and methods of the competition which may be witnessed between the world's producing and exporting communities after peace returns may go far to determine the Government's own position—not less so, in our own case, because the once familiar recruiting of the American labor market through immigration from Europe will not improbably be forestalled after this war by governmental prohibition on the emigration of laborers from the various European countries.

Disposition of Interallied Advances.—Such war-time expedients as government shipbuilding and governmental restriction on food consumption would naturally be abandoned at once with the ending of the war. So would the making of advances by our Government to other nations—unless, indeed, such advances were to take the form of relief to northern France, Belgium, or

other helpless communities among our present Allies. But the advances already made will undoubtedly affect our financial organism for a good while after the return of peace, because the obligations of foreign Governments held by our Treasury against the advances made will hereafter have to be disposed of in some way—possibly through the sale on the market of equivalent amounts of their own securities by those Governments, which would redeem the pledged obligations with the proceeds of the sale; possibly through the sale on the market of the obligations themselves by our Treasury. The latter expedient, however, will be permissible (under the existing act of Congress) only in case of a sale at par, the purchase price. In what way and with what results either of these expedients would be adopted, when England in the middle of 1918 held \$7,000,000,000 and the United States \$5,500,000,000 of such securities, when every great market will already be loaded with war loans, and when the demands of industry on capital will be urgent in proportion to its long exclusion from the market for securities—this will be one of the most interesting problems of the financial future.

A Moot Question.—Certainly not less interesting will be the very obscure problem of ascertaining the effect, on future industrial enterprise and financial development, of that prodigious waste and exhaustion of real capital, for purely destructive purposes, which has distinguished this war as it has distinguished no other war in human history.

IV

THE AMERICAN OF TO-MORROW

BY GEORGE W. PERKINS ¹

Financier

Profound Changes and a New Outlook.—One of the greatest stumbling blocks to progress is the human inclination to follow precedent and old methods too closely. Men of all periods have found it difficult to strike out along entirely new lines.

Thomas Jefferson, in his old age, wrote a letter in which he said:

“Some men ascribe to the men of the preceding age a wisdom more than human and suppose what they did to be beyond amendment. I knew that age [of the Revolution] well. I belonged to it and labored with it. It deserved well of its country. It was very like the present, but without the experience of the present; and forty years of experience is worth a century of book reading; and this they would say themselves were they to arise from the dead.”

The changes that occurred from the close of the Revolutionary War to Jefferson's old age evidently had been so great as to make a deep impression on his mind; yet, as we look back at them from this distance, they seem infinitesimal when compared with the changes that have taken place in the world during the last quarter of a century and the rapid and tremendous changes that are taking place now.

The advance in science, in intercommunication, in universal

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education—these are the three great factors which are accountable for the stupendous progress this country has made in the last twenty-five years. They have swept away old precedents, old customs, and they will eventually sweep away many of the laws now on our statute books. The man of to-day who does not fully comprehend all this is doomed to be a national obstacle; the man who does comprehend it and who prepares to reckon with the accomplishments already achieved by these three great agencies of progress and with those they are destined to achieve in the immediate future will have taken a long stride toward advancing the progress of the country.

Recollections of the Passing Order.—It is not many years since I was a lad, and yet at that time there was no such thing as a telephone; the telegraph was in very meager use; fast express trains did not exist; it took several weeks to cross the ocean; and the only flying machine we knew about was the much derided one existing in the vivid imagination of Darius Green.

At the time that Abraham Lincoln was President of the United States it took four days or more for a letter to travel from his home in Illinois to New York. And yet only a few weeks ago a young woman, unaided and alone, traveled in an airplane from Chicago to New York in eight hours and fifty minutes.

We are just entering a new electrical world, where everything is done on the instant, as it were, through the use of that strange and mighty force of which we know so little and which we call electricity. Our fathers had none of the modern machinery with which social and business intercourse is now carried on. Their sons, the men of to-day, are wrestling with the problem of finding how to use these new methods of intercommunication and still adhere to the legal enactments, the precedents, the book learning that existed in the days of their fathers.

A Problem of Adjustment.—This is our great problem to-day. It is a difficult, a complicated one, and it is causing a struggle of titanic proportions—a struggle to throw off in a night, as it were, the precedents of an old world for the realities of a new. We have been slow to realize the mighty change that has come upon the world and have found it difficult to adjust ourselves to the new conditions in which we have been placed.

Precedent makes cowards of us all. It is so much easier to go on with things as they are than to strike out along new lines. But the educator, the scientist, and the inventor have left us no choice. We cannot follow old precedents if we would. We must adjust our thought and action to new conditions.

The changes of the past twenty-five years, socially, industrially, and economically, have been great; yet I believe they are infinitesimal compared to the changes which are coming and to which the young men of to-day will have to adjust themselves during the next quarter of a century. I believe the coming changes are going to deal most largely with the relations of man to man. In this country, especially during the last half-century, we have been living in an age of the utmost freedom to the individual. It has been the individualistic period, when the order of the day has seemed to be "every fellow for himself and the devil take the hindmost." We have gloried in the freedom of the individual and have practiced this freedom to a point where, in many phases of our life, it has amounted to license to do almost anything that pleased the individual, or that brought him profit or renown, without regard to its effect on his fellowmen. This sort of freedom has literally run riot in our country and has brought on direful abuses.

Powers of the Individual, Enlarged by Science, Need Regulation.—In the early days of our country, when instantaneous intercommunication did not exist, when education was meager and science undeveloped, what the individual did was of comparatively small consequence, for his good deeds or his bad deeds did not reach very far and therefore did not affect many people. But to-day, with intercommunication drawing the world together in one centralized community, the act of the individual can affect a large number of people; therefore, freedom that is simply another expression for license to do as one pleases can no longer be tolerated.

When I was a boy, there was no Society for the Prevention of Cruelty to Animals, and any one who might have suggested that a man could not whip his horse as much as he pleased would have been ridiculed. Indeed, in those days people hardly questioned the right of a man to beat his own child as much as he pleased.

In the days when we were all driving horses there was no

speed limit and a man did not have to procure a license. This was because he could not at best drive fast enough to seriously endanger other people, and also because he did not need much knowledge to drive a horse. Since the advent of the automobile, with its rapidity and the complicated nature of its operation, it has become necessary, in order to protect other people, to require that the man who operates an automobile learn first how to operate it and second to operate it at a moderate rate of speed.

Countless other instances of a similar nature, which will readily come to mind, all show that society is finding it necessary to take away a certain amount of what has hitherto been called the freedom of the individual: it has been necessary to circumscribe it, regulate it, and control it for the protection or benefit of society as a whole. In my judgment this tendency is only in its infancy, and the American of to-morrow is going to be confronted with a further development of it.

Relation of Labor and Capital.—Take the great question of capital and labor. The freedom of the business man to do as he individually pleases is now being seriously challenged. Indeed, one of the chief qualifications for a manager of a large business concern is rapidly coming to be the ability to adjust differences between capital and labor and to understand the correct relationship of one to the other. Until recent years little broad thinking was given to this problem, and differences arising between capital and labor were settled on the basis of "Might makes right." If the business manager was strong enough he ground the very last cent out of his laboring men and obliged them to work in surroundings that were injurious to life and limb. If labor was strong enough it used its power to strike for higher wages and sometimes to destroy property.

All this is rapidly changing, and we are entering a new period of relationship between capital and labor. In the long ago this relationship was that of owner and slave; then came the period of master and man; then the period of employer and employee, each period being a decided step forward. I believe that we are just now entering a period of copartnership, when the tool user will be part tool owner and when capital and labor will share

more equitably in the profits of the business in which they are jointly engaged.

This advance is inevitable because of our educational system, which teaches the working man to think, to reason for himself.

It is inevitable because intercommunication has told the working men in one community what the working men in other communities are striving for and achieving.

It is inevitable because it gives stability to business and because it is as advantageous to capital as to labor.

It is inevitable because strikes and lockouts can never be settled satisfactorily or permanently by merely raising a man's wages; for, as a matter of fact, when a working man strikes it is not merely to secure an increase in his wage: that is what the newspapers tell us the trouble is all about, and that is what he asks for, but way down underneath, what he is really striking for is a larger percentage of the profits of the business in which he is engaged. He may not realize this; it may not take just this form in his mind when he strikes, but, subconsciously, at least, this is precisely what he is doing. No mere increase in wages, therefore, can ever satisfactorily solve this problem. It can be solved only on the basis of profit sharing. By profit sharing I do not mean bonus giving. I mean actual profit sharing based on the earnings of the business, with a fair percentage to capital and a fair percentage to labor after ordinary wages and interest have been earned. Profit sharing can be practiced satisfactorily only when the business concern makes its transactions public, so that the laborer and the stockholder can know as much about the business as the manager himself. In the adjustment of difficulties between capital and labor I am confident that open books will accomplish much more than open shops.

Wanted—A New Heart and a New Spirit.—In this very question of the relationship between capital and labor, we find that a great upsetting of precedents is taking place. This is because our precedents, our laws, our practices have been founded largely on the proposition of individual freedom, on the right of the individual to deport himself about as he chose. The changes that are taking place are far-reaching and fundamental. Can we successfully approach them from the same point of view as our fathers, who lived in a strictly individualistic age? Can we ap-

proach them from the knowledge we have gained from law books that were written in the individualistic age? If we do, we shall be combating the mighty onward rush of new thought and new conditions provided in large measure by the scientist, the educator, the inventor.

If we decide that the individualistic period is rapidly passing, that the freedom of the individual must be more and more curtailed for the benefit of society as a whole, what is the outlook? Is it a sad, pessimistic future that unfolds? Does life hardly seem worth living under such conditions, or does it hold out an optimistic future, with finer opportunities and more worth-while goals? To my mind it all depends on how thoroughly you analyze the situation and what you believe the goal of the man of the future should be and is going to be.

Past and Future—A Contrast.—Let me see if I can picture it as I see it. First, just a glimpse into the past. The individualistic period in which we have been living, coupled with the great and rapid development in intercommunication, quickly brought great fortunes to individuals. Money-making has been the one, all-absorbing occupation in this country for the last forty years. About the only goal we have had has been the almighty dollar. The first question asked when a man dies is "How much was he worth?" with scarcely a thought as to how much he did for his community or his country. If he did anything for his country or his community, he did it in his will by leaving a certain amount of money to charity. He did not do it by rendering public service or by giving of himself or of his time. There has been very little of this sort of service performed in the United States by men of ability during the past twenty-five years.

Have the men who have lived and worked simply to acquire great fortunes obtained peace of mind, happiness, and honor in the operation? How many of them could answer yes? A very small fraction. Has the country been benefited by the course they have taken? A very large majority of our countrymen would answer no. On the whole, the individualistic age has not been a success, either for the individual, for the community in which he has lived, or for the nation. This period is passing away. We are, beyond question, entering upon a period where the welfare of the community takes precedence over the interests

of the individual, and where the liberty of the individual will be more and more circumscribed for the benefit of the community as a whole. The individual's activities will hereafter be required to be used not only for the enjoyment, comfort, and pecuniary reward of himself, but for that of his fellowmen as well. To my mind there is nothing in the signs of the times so certain as this. I believe the sooner the man of the future understands this, accepts it, and prepares to shape his own course accordingly, the more successful his career will be, the better off his country will be, the happier he and every one else will be.

Our only decoration—the almighty dollar—is not as highly prized as it used to be. The man of exceptional ability, of more than ordinary talent, will hereafter look for his rewards, for his honors, not in one direction but in two—first and foremost, in some public work accomplished, and second in wealth acquired. In place of having it said of him at his death that he left so and so many hundred thousand dollars, it will be said that he rendered a certain amount of public service and incidentally left a certain amount of money. Such a goal will prove a far greater satisfaction to him, he will live a more rational, worth-while life, and he will be doing his share to provide a better country in which to live.

In my judgment the fashion of acquiring wealth simply for the sake of possessing it has about reached its greatest height, and the fashion of performing public service for the sake of its performance is coming into vogue. If I am right, then the problem of the man of the future is not how he can acquire a very large personal fortune, but how he can acquire a competency and at the same time fit himself to be an all-round citizen and render some worth-while public service.

Basis of Belief in the New Order.—I have these reasons for believing that future conditions will be as I have briefly sketched them:

First, because the world is being drawn together in one centralized community through the wonderful development in science and the marvelous work of the inventor.

Second, because the great European war is every day shattering old precedents, customs, and methods. It is striking down individualism and building up collectivism. It is leveling class

distinctions and recognizing in every direction that the rights of one must give way to the rights of many. Aside from the awful tragedy of the war, nothing is so startling as the social and economic changes that the war is bringing to Europe, many of which will undoubtedly remain after the war is over. It behooves us to take full notice of this great economic revolution, lest when the war is over we find that Europe is the new world and our country the old world.

Third, because in our country especially we are entering upon a new stage of development which calls loudly for men who will render disinterested public service.

While our country was new and was being developed, while we had millions of acres of new fertile land, mines of all kinds of precious metals just being opened up, and great virgin forests, it did not so much matter how extravagantly our national, state, and city governments were administered. It did not so much matter whether or not we saved the pennies, for we were living in a new, rich land. In recent years all this has changed. There is little more new land; our mineral wealth has been very largely located and opened up; our forests have been denuded. We are now reaching the point where we must conserve our resources. We face new conditions, and in order to survive and succeed we shall require a different class of public service from that which we have been getting.

Universal Training for Service.—One reason why I am strongly for universal military training is that it is the best method I know to develop in the youth a sense of all-round responsibility to his country. It teaches him that he owes something to the community, not only in time of war but in time of peace, and, as a result, if when he reaches manhood he is called to public service in time of peace, he is much more apt to be a faithful, conscientious servant than if he had not had military training. He enters public service in time of peace in more nearly the same spirit that he would enter military service in time of war—from a sense of patriotic duty and a desire to serve his country and his fellowmen.

Centralization and Responsibility.—If our Government is to endure, if our country is to prosper, if we are to take our proper

place among the nations of the world in the new civilization that is upon us, the man of the future must live not for himself alone but for others. If he is one whom the Creator has endowed with more than ordinary ability, he must realize that his extra ability has not been given to him to be used for selfish purposes but to be used, at least in part, for the benefit of his brothers. While this is by no means a new idea, it is presented to us to-day with new and striking force through the centralizing processes that are going on in the world, by which men are being thrown into such intimate contact with each other that consideration for each other is being forced on the attention of all and is speedily becoming a social, industrial, and economic necessity.

Look in whatever direction you may and you will find that centralization is the order of the day. The telegraph, the telephone, the automobile, and the airship are the causes. They have wiped out not only old precedents and customs but state and national lines as well. A man living in Boston who wishes to talk to a man living in San Francisco no longer has to consume a week traveling clear across the country in order to do so. He simply rings a bell, puts a little instrument to his ear, and proceeds to talk to the man in San Francisco. There is hardly a miracle in the Bible more wonderful than this.

The New Nationalism.—The miraculous changes of recent years have affected politics in just as profound a manner as they have affected business and social relations. The doctrine of States Rights is being rapidly demolished. The Nation is being obliged to assume many of the functions of government heretofore performed by the states and this tendency is growing, not receding. Precedents in all such matters are going by the board with great rapidity. The state, viewed as an individual with the right to do as it pleases within itself, without regard for other states, can no longer be tolerated, because what one state legislates to-day may affect not only the people of that state but those of other states also. Only the Nation can act in matters that affect interstate relations, and with intercommunication and transportation developed to their present stage a considerable percentage of a state's activities are interstate in their effects and consequences. We must, therefore, take on a new nationalism.

The New Internationalism.—Not only this but we must take on a new internationalism. The world has been drawn very closely together by the cable and the trans-oceanic liner, but it is on the verge of being drawn infinitely more closely together by the wireless, the airship, and the submarine telephone. When these wonders are in full working order, when they become practical, every-day instruments of intercommunication and transportation, then the social practices and the industrial methods of one nation will quickly and seriously affect the social relations and industrial practices of all other nations, and this will require the yielding by nations of certain of their individualistic rights and prerogatives in order to safeguard and benefit the world as a whole.

This opens up a great new vista: it presents problems that are intensely interesting and of far-reaching importance. These problems are being met in part by those of us who are to-day passing the meridian of life. They will confront the American of to-morrow with tremendous force.

The Man of the Future.—In my judgment the period that is upon us offers large opportunities for individual thought, initiative, and action. It calls for original thinking, for constructive work, for courageous statesmanship. The opportunities that present themselves are most alluring. Men of sober minds, clean, healthy bodies, and staunch courage will find a myriad of opportunities to make distinctive places for themselves in the great new period upon which we are just entering and which carries so much promise for humanity.

The political party that fails to recognize all this will fail at the polls. It is not enough in these days to appeal to the people on the principles on which a party was established a half-century ago, or on what it accomplished for the country twenty-five years ago. The people are no longer interested in what happened yesterday. Their whole interest is centered on what is going to happen to-morrow. They are looking for leaders with vision, with courage, with constructive statesmanship, and the party with such leaders and such statesmanship is the party to which the people are going, regardless of its name or its traditions.

A reconstruction period is at hand. It is not simply local, nor is it merely national; it is international, worldwide. The

mighty changes that are taking place in Europe tell us this with unmistakable voices. The man of the future must realize all this. He must be ready to adjust himself to the new conditions that are crowding upon us. He must have sufficient vision, intelligence, and courage to cast aside the methods and precedents of a bygone age and strike out boldly along new lines. He must not look backward but forward. Not the spell of the setting of yester's sun, but the vision of the dawn of a new day—~~that~~ is the inspiration of the American of to-morrow.

PART II

EFFICIENCY IN PRODUCTION

V

OUR MINERAL RESERVES

BY GEORGE OTIS SMITH¹

Director, U. S. Geological Survey

INTRODUCTION

Minerals the Foundation of the Nation's Industry.—"Foundations of power" is the finely descriptive term applied by Secretary of the Interior Lane to the Nation's mineral resources. This term not only expresses the essential value of minerals to mankind in the present day but recalls the significant fact that a mineral name has been given to each step in the evolution of society—the stone age, the copper age, the bronze age, the iron age, and finally the coal age in which we of the Twentieth Century live.

Even another early recognition of the value of mineral deposits as a source of wealth and power is seen in the reservation to the sovereign of certain rights in their ownership, the trace of which remains in our technical word "royalty." To-day, however, the broader view of mineral resources as a national asset comprehends not merely their value as a source of governmental revenue, as a type of private property specially adapted to direct taxation, but rather their higher value as quasi-public property, the public interest in which lies in their wise use as the basis of industrial development. The idea of "royalty" as a tax to benefit the sovereign has given place to the social idea of opportunity for profit-

¹ A. B., Colby College, 1893, A. M., 1896; Ph.D., Johns Hopkins, 1896; Director of the U. S. Geological Survey since 1907, and for fifteen years before his appointment by President Roosevelt was field assistant, assistant geologist, and geologist in the same organization. In September, 1914, Director Smith, with a group of his associates, issued a bulletin of the U. S. Geological Survey on "Our Mineral Reserves: How to Make America Industrially Independent," which called to public attention many of the problems which have later become so critical.

able work in which labor, capital, and engineering all share. As raw materials, the mineral resources of the United States form the foundation of the Nation's industry.

Strategic Value of Industrial Independence.—National welfare and efficiency require that the supply of raw materials, whether foodstuffs for man and beast or fuels and metals for industry, must not only be adequate for even emergency demands but must not be subject to interruption. Herein lies the advantage, strategic in time of peace as well as of war, of a self-contained and self-determined state—one that is industrially independent to a large degree, because it possesses and utilizes great natural resources. Compare the dependence of England upon countries overseas for wheat, cotton, and copper, for instance, with the independence of the United States, which exports all these, as well as other foodstuffs and metals. England's chief raw material available for export is coal, but most of the wheat she needs at home is imported—and nearly as much from non-British countries as from Canada, India, and Australia. In times of peace, too, 90 per cent of her sugar came from foreign countries. Moreover, it is true that Germany's persistent and largely successful attempts to control the metal supply of the world even included the control of that from the British Empire.²

America's Leadership in Mineral Production.—The commanding economic position of the United States to-day has been largely determined by the variety and the size of its mines, and its future position as a world power is guaranteed by the extent of its mineral deposits that are now unutilized or only partly developed. No other nation approaches the United States in mining activity, nor is any other country of the world believed to possess greater reserves of the minerals essential to present-day civilization.

Even a glance at the world statistics of mineral production for the year 1913 makes plain America's leadership in time of peace. This country's contribution to the world total in that year was:

Petroleum	64.6%	Bauxite	39.8%
Copper	55.7	Coal	38.6
Phosphate.....	43.1	Molybdenum	37.6
Sulphur	42.9	Zinc	37.2

² "Resources of the Empire," J. Watson Grice, International Information Committee, London, 1917.

OUR MINERAL RESERVES

61

Iron ore	35.6%	Salt	20.5%
Lead	34.3	Gold	19.5
Vanadium	33.3	Tungsten	17.4
Silver	29.8	Mercury	17.2
Sheet mica	23.	Arsenic	15.6

The United States' output of natural gas, which though not an exportable raw material furnishes the fuel for important industries, was nearly 95 per cent of the world consumption.

WAR ADJUSTMENTS

The New Demand for Raw Material of Domestic Origin.—In August, 1914, Secretary Lane,³ in an interview, pointed out in a prophetic way the adjustments in world commerce and domestic industry that must necessarily result from the European war, then just begun. As then stated, interruption of the flow of importations of raw materials in which the country is not already independent must be overcome by the development of neglected domestic mineral resources, and new demands from the world's markets and the home consumers for other mineral products must be met by speeding up American production. Now, after nearly four years, the process of adjustment is still going on, but the results already afford some measure of the increased industrial independence attained and suggest what further progress may and may not be expected. An examination of balance sheets indicates what we possess in quick assets, and other data can be added to show roughly our ultimate resources.

Increased Demand for Power.—The war-time test of great industrial expansion has, in the words of the editor of a technical journal,⁴ made the world "power hungry." Not only have France, robbed of her coal resources, and Italy, lacking coal of her own, turned to the unharnessed mountain streams for power, but America, unable to meet fully the increased demand for steam coal and fuel oil, has both hastened new hydroelectric development and also forced the issue of interconnecting power systems. The pooling of power capacity of plants already installed has become a matter for State and Federal action, because the interest of the public in the high efficiency and economy

³ Quoted in part in U. S. Geol. Survey Bull. 599, pp. 6, 7, 1914.

⁴ *Electrical Review*, March 9, 1918, p. 420.

that can be gained by operation in large units takes precedence over any private or corporate rights in the individual plants.⁵ A public utility must be such in fact as well as in name.

War-time Test of the Mineral Industry.—No more severe war-time test of the mining industry can be cited than that imposed by the largely increased demand for fuels. In petroleum the wells in 1917 yielded an increase of more than one-sixth over the normal production of the years immediately preceding 1914. In bituminous coal the total shipments in 1917 were 8 per cent larger than for the preceding year and 25 per cent larger than at the beginning of the European war. The output of anthracite in 1917 was also largely in excess of all previous records—14 per cent more than in 1916. Yet these increases in supply were insufficient to meet the demand, and the net result was serious and widespread embarrassment to all industry.

Fortunately statistics are available on which to base an analysis of the recent shortage in bituminous coal production.⁶ The weekly returns show that the coal-mine capacity was at all times sufficient to meet the demands of even so exceptional a year as 1917, but unfortunately the average daily production for the 10 months—from June, 1917, to March, 1918—was only 71.36 per cent of the average capacity. The low record for this period was 55.8 per cent, in the week ended January 19, and the highest percentage of efficiency 79.8, in the week of September 8, when car shortage, labor shortage, and mine disability were of approximately equal weight in causing the 20 per cent lost time at the mines. It is noteworthy, too, that this maximum efficiency was reached when the percentage of lost time due to car shortage was at its minimum, while in the week of minimum efficiency car shortage was similarly at its maximum in contributing to lost time. Too broad generalizations should not be drawn from this

⁵ This subject was discussed by the author before the Second Pan-American Scientific Congress, Washington, December 28, 1915. "The People's Interest in Water-power Resources": U. S. Geol. Survey Water-Supply Paper 400, p. 2, 1916.

⁶ Weekly statements issued by the U. S. Geol. Survey and published by the technical press give the average daily production of bituminous coal and coke and analyze working conditions at 5,100 mines as reported by the operators.

statement of conditions, for throughout the period mentioned there were contributing causes other than transportation shortage. If the average daily production, however, had been raised to the highest rate actually maintained for a week, the country's soft-coal output in 1917 would have met the year's great demand; in other words, the outstanding fact is that there was ample plant capacity, allowing even a margin for lost time from various causes. More mines would not have produced more coal.

Increased Output of Metals.—The analysis of the adverse conditions with which the coal industry has contended applies in part to the mining and smelting of the metals. Yet the new records of output that have been made furnish an encouraging response to this war-time test. Of the metals in common use derived from domestic ores, both zinc and aluminum have nearly doubled in output since the war began, copper has increased more than 50 per cent, lead nearly 40 per cent, and iron nearly 25 per cent. Expressed in percentages these gains are impressive, but a statement of the tonnage of metal represented by these increases gives a true measure of the activity of mine and smelter as well as of the added burden placed upon the railroads in these years of industrial expansion. Last year America's contribution of these five essential metals amounted to nearly 10 million tons more than the normal output of the years immediately preceding the war. This increased output of metals of course represents more than four times this tonnage in ores mined and handled, and if to this is added the 74 million additional tons of coal mined, we begin to realize what has been involved in adjusting the country's industry to war-time conditions. As a means of visualizing this increased tonnage of coal and ore, the figures may be reduced to carloads, giving as the result more than two million heavily loaded cars of the largest capacity. Yet this was simply one part of the increased burden that our transportation system had to handle last year as compared with the normal year. Much of the ore was moved only short distances to mill or smelter, but most of the resulting metal was shipped half across the continent, and most of this traffic, whether in metal or fuel, was east-bound. Such

64 AMERICAN PROBLEMS OF RECONSTRUCTION

a test must be expected to reveal weak points, but the result is prophetic of America's productive capacity in raw materials.

PRESENT DEGREE OF INDEPENDENCE

Substitution of Domestic Products for Imports.—No nation can or ought to be absolutely self-contained, and for markets and ocean transportation the United States is largely dependent upon other nations; yet in its possession of raw materials this country is independent to a unique degree. In 1913 out of 31 principal mineral products which may be regarded as most essential the United States led the world in the output of 13, whereas the British Empire led in 6, and Germany and Austria in only 3. Of 3 of these products the United States had practically no output, the British Empire was similarly deficient in 4, and Germany in 11. The extent of the reserves of the United States will be shown on pages 66-70, but it is well to note here in more detail the extent to which this great national wealth can be regarded as quick assets. with which to meet any emergency.

Percentage of Consumption Met by Domestic Production.—The simplest method of presenting the facts of the nation's present independence in mineral supplies is to state the percentage of consumption met by domestic production.

In the following list of metals and non-metalliferous mineral products index figures above 100 show that a surplus is available for export, and figures below 100 indicate that imports are necessary to meet the present needs of the country. For the metals the figures given are based on primary metal. In the case of graphite the figure given is for all grades, whereas for crucible grades the index should be only 11. The statistics on which these tables are based are for the year 1917.

Metals

Aluminum	124	Manganese ore.....	32
Antimony	10	Nickel	3
Chromite	37	Platinum and allied metals	13
Copper	213	Quicksilver	120
Iron ore.....	100	Tin	0.13
Lead	124	Tungsten ore	65
Zinc	165		

Non-metalliferous Minerals

Abrasives (emery and corundum)	90	Graphite	25
Asbestos	1.3	Gypsum	93
Asphalt and bitumens.....	92	Magnesite	90
Barite	100	Mica	38
Borax (crude).....	100	Nitrates	0
Bromine	100 +	Petroleum	93
Cement	102	Phosphate rock	104
Coal	100	Potash	12.8
Feldspar	89	Pyrite	33
Fluorspar	94	Salt	101
Fuller's earth	82	Sulphur	105

Outstanding Deficiencies.—The figures just given to show the production-consumption ratio not only express the extent of independence we have already attained; they exhibit our present deficiencies. Most of the “war minerals” (so called for their newly realized importance), however, are those with which the whole world is scantily supplied.

In metals the United States is poorest in tin, platinum, and nickel. The domestic production of tin and platinum is less than 1 per cent of our needs, and there is little of promise in known resources even if some increase of production can be expected, although the hunt for these metals is being continued by the Government. Nickel, on the contrary, is obtained as a by-product from copper ores of domestic origin, and although the quantity thus recovered has naturally more than doubled since the war began, the domestic requirements have about trebled. Even a much higher price would not more than double the present output. In several States there are small deposits of nickel ore, a few of which have been worked in the past, so that in time of emergency high-cost nickel could be produced within the United States for a short period.

The deficiencies in potash salts and nitrates present more hopeful problems. Although no commercial deposits of nitrates have been discovered, fixation-nitrogen and by-product nitrates can be provided in sufficient amount to meet all needs that can pay the higher price. Already the high price quoted for potash has developed recovery from brines, industrial wastes, kelp, and cement-kiln fumes sufficient in 1917 to meet one-eighth of the normal demand and more than three times the 1916 domestic output. The largest supply of potash brine, at Searles Lake,

California, is estimated to contain 10 million tons of pure potash (K_2O), or 40 times the annual consumption in the period before the war.

EXTENT OF RESERVES

America's Future Strength.—It is important to survey the mineral reserves behind the line—using the military metaphor—and to plan for the future with a full knowledge of the strength of these reserves and of the extent to which they are readily available to meet any shock of emergency. Possibly the records of the last few years furnish the best testimony on the latter point, and indeed the remarkable response of the mines to the call from our Allies for help as well as to the call from our own industries has increased our faith in America's reserves. Present achievement thus furnishes some index to future capacity.

Distribution of Resources.—America's mineral resources are widely distributed: 31 States shipped coal last year, 18 States produced oil, 24 States mined iron ore, 23 States produced copper ore, and 21 lead and zinc ores. And to emphasize the lack of localization of this mineral wealth, the leadership in production is divided between Pennsylvania in coal, Arizona in copper, Minnesota in iron, Oklahoma in oil, and Missouri in lead and zinc. Although the transportation of fuel may seem the Nation's greatest task in the distribution of raw material, it should be realized that the New England States and California are the only States that do not either contain large deposits of coal or lie contiguous to coal States.

This distribution of raw materials over the length and breadth of the country has tended to prevent geographic centralization of industry.⁷ Thus the preëminence of Pennsylvania as a producer of raw materials has been less marked each year. So, too, the center of coal production must surely continue to move westward toward the geographic center of the nation's coal reserves.

Estimated Supplies of Essential Minerals.—First to be considered in any inventory of raw materials is the Nation's supply

⁷For discussion of this topic by the writer see "Distribution of Industrial Opportunities": Trans. of Am. Inst. of Chem. Engrs., vol. 7, pp. 8-15, 1914; *Jour. Ind. and Eng. Chem.*, vol. 6, p. 67, 1915.

of mineral fuel. The latest estimates⁸ of the content of the coal fields of the United States proper yield figures in terms of millions of millions of tons—3,538,554,000,000 at the close of 1914. To this impressive total should be added an estimate for Alaska, which can not be given with the same detail that is possible for the States yet perhaps with an approximate accuracy comparable with that of the estimates that have been made for Siberia or China. A conservative estimate⁹ of the coal in the several Alaskan fields that have already been explored geologically is 15,000,000,000 tons.

A statement of the Secretary of the Interior to the Senate in February, 1916,¹⁰ estimated the extent to which the ten oil fields of the United States are becoming exhausted as ranging from 2 per cent for Wyoming and Montana to 93 per cent for the Lima-Indiana field. The petroleum remaining in the ten fields was estimated as 7,629,000,000 barrels. Recently the Federal geologists who made these estimates have reviewed all the available data, including the results of two years of work, and reduced the estimated amount remaining to less than six billion barrels at the beginning of 1918. The estimates by fields as of January 1, 1917, are as follows:

TOTAL OIL REMAINING IN THE GROUND IN THE UNITED STATES AND ALASKA,
JANUARY 1, 1917

Appalachian	560,744,000
Lima-Indiana	43,000,000
Illinois	200,000,000
Mid-Continent	1,730,000,000
North Texas	134,000,000
Northwest Louisiana	106,333,000
Gulf coast	734,850,000
Colorado	6,000,000
Wyoming	230,000,000
California	2,256,000,000
Other States and Alaska.....	181,000,000
	<hr/>
	6,181,927,000

Of this total, over 10 per cent is believed to be publicly owned, including about 4 per cent in the naval reserves.

⁸ M. R. Campbell: "Coal Fields of the United States": U. S. Geol. Survey Prof. Paper 100-A, 1917.

⁹ U. S. Geol. Survey Bull. 394, p. 182, 1909.

¹⁰ 64th Cong., 1st sess., Sen. Doc. 310, p. 17.

In view of the fact that the present annual output of the oil wells of the United States exceeds one-third of a billion barrels, it is reassuring to remember the vast reserves of oil shale, especially in the West. In Colorado and Utah alone these oil-shale areas cover 5,500 square miles, and their content of high-grade petroleum is estimated at forty billion barrels. This volume is better realized when it is recalled that all the oil that has yet been produced in the United States is but about 3,500,000,000 barrels. Although in Scotland similar shales no richer in oil content have been utilized for more than 50 years, in the United States petroleum in the "oil sands" has hitherto been too plentiful to permit the more expensive recovery of oil from these shales.

Estimates of the Nation's reserves of ores of the essential metals are for the most part even less definite than the estimates for coal and petroleum. The maximum estimate¹¹ of 7½ billion tons of iron ore of present-day commercial grade might be sufficient for only a century at the present rate of consumption, yet every authority on this subject calls attention to the possibility of prolonging the life of these reserves. Professor Leith's judgment is that in the Lake Superior region as much ore will be found in the future as has been found in the past. The annual census of ore mined shows an already large tonnage rapidly increasing each year, and the average metal content slowly decreasing each year, so that together these two factors make any estimate of reserves difficult, and this difficulty is increased by the gratifying fact that at present new discoveries of ore are practically keeping pace with the heavy production. In a word, the geologist and engineer have not yet discovered all the iron ore in the country, nor has the metallurgist reached his limit in utilizing the lower grades of ore.

In estimating the reserves of copper, prediction is even less definite. Professor Lindgren in 1909 stated that each year would find extensions of reserves added to those already discovered, and Professor Emmons in 1916 expressed his opinion that discoveries in new districts might be expected to equal those now

¹¹ Eckel, E. C., "Iron Ores," 1914.

Leith, C. K., "Foundations of National Prosperity," 1917.

Burchard, E. F., "Our Mineral Supplies—Iron": U. S. Geol. Survey Bull. 666-V, 1917.

known. Mr. Butler's explanation of these current gains in reserves is equally optimistic.¹²

Estimates of the United States reserves of other minerals cannot be given in quantitative detail, but the relative position of this country may perhaps be suggested in the following section.

World Position of the United States in Reserves.—The generally accepted statistics for the world's coal resources credit the United States with 52 per cent of the whole.¹³

To this wealth in mineral fuel must be added from one-fourth to one-third of the world's petroleum reserves, not including that to be derived in the future from oil shales, in the possession of which America probably also leads the world.

The more conservative figures for iron-ore reserves credit the United States with more than one-fifth of the total tonnage of ore of present-day commercial grade in the three continents bordering the Atlantic Ocean. The International Geological Congress estimated that the potential reserves are much larger and allotted to the United States 60 per cent of the whole.

Of the other metals, the United States' percentage of world production of copper in 1913 is probably too large to serve as an index of resource strength, as the large deposits of South America had not then become a factor. As an approximate statement, however, one-half of the world reserves may be credited to the United States. For lead and zinc no better estimate can be offered as an index of world position than the percentage expressed by the production of 1913. Since then the zinc reserves of the country have shown themselves to be equal to all demands made upon them.¹⁴

Of other metals, like gold or mercury, the production in 1913 furnishes percentages doubtless much too high to serve as an index of world position in the matter of reserves. In other min-

¹² Lindgren, W., "Resources of the United States in Gold, Silver, Copper, Lead, and Zinc": U. S. Geol. Survey Bull. 394, 1909.

Emmons, W. H., "Conservation of Copper": Pan-American Congress, Washington, 1915-16.

Butler, B. S., "Our Mineral Supplies—Copper": U. S. Geol. Survey Bull. 666-Q, 1917.

¹³ "Coal Resources of the World": International Geological Congress, Canada, 1913.

¹⁴ Siebenthal, C. E., "Our Mineral Supplies—Zinc": U. S. Geol. Survey Bull. 666-Y, 1917.

erals, like phosphate rock, the untouched reserves of the United States are so large as to promise to be a source of national strength for long periods in the future.

AFTER-WAR NEEDS

Vision Necessary Even To-day.—Our supreme endeavor must continue to be to meet with even greater measure of success every demand that the present exigency may put upon American resources; nothing else counts to-day. Man power, however distant from the scene of world conflict, must be "connected up" to carry the "peak load," whether that abnormal demand continues for months or years. Yet without lessening this productive effort in the slightest degree or hesitating for a moment in attaining the maximum efficiency possible, we may render this service with a vision that looks beyond the present crisis. Indeed, as General Sherman expressed it, "war's legitimate object is more perfect peace," and if the industries behind the battle line are to win this war, it is logically a part of the same great project to fit these industries to serve humanity in the time of peace to follow. The only patriotic profiteering is that in which the Nation rather than any corporation, the people more than any individual, may profit through an industrial expansion that possesses a future value as well as present use. "Where there is no vision the people perish."

Readjustment of Mineral Industry.—After the war changes in both world-market and home-market conditions will require readjustments. Wherever competition in supply becomes a factor either better quality of product or cheaper price will again control: the war-time production of quantity regardless of quality or cost can continue only where the demand continues to exceed the supply.

One of the dangers confronting the mineral industry, as it tries to anticipate the needs of the period that will follow the war, arises from the fact that quantity output under the stress of war demand has been in part made possible by reducing development work. Future capacity has been sacrificed to present production, and this necessary evil is increased by the influence of uncertainty. With the high cost of added equipment as a

known factor and the possibility of price fixing of his product as an unknown factor, the mine owner naturally hesitates to take the risk of expanding his plant. From his point of view the future is too uncertain to warrant those expenditures for upkeep and replacement of machinery or for exploration which are necessary to insure the permanency of regular output demanded by his plant.

Improvement in quality, reduction in cost, regularity of output are some of the items that must be considered in the readjustment of the mining industry, to meet the changes in conditions. To illustrate how these ends are to be attained, an object lesson is furnished in the now well-recognized effect of the saloon upon industry. Speeding up production, whether temporarily to supply war demands or permanently to meet economic conditions that may prevail after the war, can be greatly promoted by national prohibition. The testimony of the executives of the largest iron and steel plants, the coal operators of the East, and the mine managers of the West includes specific estimates of increases of 10, 20, or 25 per cent in labor efficiency when the saloon is outlawed.¹⁵ Full recognition of the part played in the prosecution of the war by industrial plants would logically provide for a 5-mile dry zone around each shipyard, steel plant, coal mine, and every other factory or mine producing the materials essential to outfit our soldiers and sailors, just as such zones are established to protect the navy yards and cantonments.

Expansion Justified.—In considering after-war needs, even further expansion of industry seems warranted now. There are certain "key" industries whose products have a national value from their bearing upon other larger industries. This lesson has been learned during the war period, and expansion of industry along every essential line must continue to make the United States more self-sufficient.

When thought is given to the question of international competition in industry after the war, there can be added to the assurance that comes from America's advantage in supply of raw material a confidence based upon the ability of our engineers

¹⁵ Letters of this type are published in the *Manufacturers' Record*, of Dec. 20, 1917, and Feb. 28, 1918.

and the capacity of our labor. The American workman produces more than two or three of his British fellows, and this with shorter hours of labor. Not in one industry alone but in a score or more branches of manufacturing the value of the American worker's product is from two to three times that of the worker in the United Kingdom. The principal reason for this increase in man power is the larger use of machinery in the United States—the utilization of the thermal units of coal and the kilowatts of hydroelectric power to supplement man muscle.

This larger use of natural resources to the advantage of the workers in mill and factory is in turn possible through a corresponding larger output of coal per mine worker in America. Our industries have all profited by this large use of machinery, and the promise of the future, stated in terms of international industry, appears to depend upon cheap power. The number of horsepower used per 1,000 wage earners in America ranges from two to four times the corresponding amount used in the United Kingdom.¹⁶ Further confidence follows when the increase in the productive capacity of the American coal miner is considered. In the period 1900-1916 the average daily output of the employee in the bituminous mines increased from 3 to nearly 4 net tons, and his annual production from 700 tons in 1900 to 896 tons in 1916.¹⁷ It is believed that under the stress of the past year the increase of production of soft coal was accomplished through increased working time of practically the same number of miners employed, while in the anthracite mines the average production both per year and per day probably exceeded any previous record. Contrast with this showing the fact not only of a much smaller average output for the British coal miner—at no time half that of the American worker—but also of a steadily decreasing annual production per miner, and the reason for cheaper coal in the United States is evident, even though wages are higher here than in the British mines.

Whatever the industrial rivalry among nations, our unsurpassed coal reserves, with efficient mining, reinforced by the water-power resources, constitute a strong line of national defense. As

¹⁶ A full exposition of the comparative statistics of production is given by Gray and Turner, in "Eclipse or Empire," London, 1916.

¹⁷ Leshner, C. E., "Mineral Resources of the United States, Coal in 1915," Part A, U. S. Geol. Survey, p. 361; and oral statement.

a national asset cheap power finds its value in this relation to industrial opportunity for the nation's workers.

UTILIZATION OF RESOURCES

Factors Promoting Full Utilization.—Full utilization is the ideal for both the nation and the individual, and into the attainment of this ideal several factors enter. The direct incentive to the producer is his profit, which in turn involves price and extent of market, cost and efficiency of production, certainty of continuance of operation, and finally the equitable distribution of the net proceeds. If these factors are all favorable, full utilization of the deposits of coal or oil or ore must benefit the nation of consumers equally with the smaller groups of producers: their interests are not necessarily antagonistic.

Price and Extent of Market.—The price of a product must of course largely control private production, whether that price is the response to economic law or to some governmental agency. The cut-throat competition between buyers of coal during the first half of 1917, for instance, was just as truly a phenomenon of the law of supply and demand as the cut-throat competition between sellers had been in previous years, and both of these extreme manifestations were disastrous to the public interest. Competitive buying, however, may advance prices only to the normal level necessary to stimulate production to meet the demand; raising prices above that level may do no good, but much harm, from the encouragement thus given to speculative, inefficient, and wasteful production, with costs too high for long-continued operation. Then it is that governmental regulation becomes necessary to determine what price is warranted to make the resources available to the extent of the tonnage required by the public. So too in periods of competitive selling the price may sink below the proper level, and governmental regulation becomes necessary to assure that operation is possible without over-great waste of resources or serious loss to labor and capital.

If the producer alone is considered, price may be either too high or too low to assure efficient utilization of a natural resource. Nor is the truth essentially different from the standpoint of the consumer. In the long run unrestricted competition failed to

benefit the coal consumer. Aggregate costs were increased by idle mines, and there was also too small profit to the average producer. All this favored profiteering when competitive buying actually began, and the newly opened or reopened mines led off in boosting prices.

As the country has also learned in the past year, certainty of supply of fuel is more to be desired than low prices, and indeed, looking back over the years of plenty we may see how cheap coal has developed wasteful consumption. Coal has been cheaper than skilled firemen, with the result that both smoke-stack and ash pile told the story of the lost thermal units. In terms of national economy, which demands full utilization, prices can be too low.

Since it is from the weighted average price received that the producer must figure his profit, it follows that the price to a preferred customer may be excessively low while the general public may be paying a price much too high. To quote different prices to different consumers must be regarded as undemocratic: it is a practice in the same class with secret rebates, and President Wilson's orders under his war powers fixing one price for all will have a beneficial effect upon our industrial system after the war. However prices may be manipulated, the people as a whole must pay the costs.

With price is linked extent of market. Whether industrial expansion is planned with reference to a commanding position in the world market for raw materials or for the manufactured articles derived from metals with the aid of power generated from the mineral fuels, the extent of the market open to the products of American labor will be determined in large measure by price. This fact needs to be kept in mind whenever any tax, direct or indirect, on the mining industry is planned; no handicap must be placed upon any industry that needs to compete in the world market.

Another feature in price regulation that can hardly be over-emphasized is the advantage of keeping the prices of raw material and of manufactured derivative equitably adjusted. Lack of such adjustment has been seen at certain periods in the market prices of gasoline and crude oil. More striking discrepancies in rising prices were observable a year ago in the relative prices of steel plates, pig iron, iron ore, and coke. Measured either by

past records or by present practice, the differential for the manufactured product had increased beyond the bounds of reason, and price fixing by the Government was necessary to restore a just relation of the product to the raw materials. Another illustration can be found in price records of manganese ore and of its derivative ferro-manganese, used in making steel. This instance deserves special consideration, as it is directly connected with the utilization of domestic to replace imported ore. In this as in some other minerals, both price and disposition of the imported ore are more easily manipulated by the middlemen than they could possibly be were there domestic producers in the market strong enough to deal directly with the consumers. Too often the importer levies so heavy a tax on the industry that were an import duty of similar size included in any proposed legislation the consumer would realize the fact of the added item of cost; and yet this importer's profit can in no sense be interpreted as "protection to domestic industry," because his influence has of late been found to be directly opposed to the development of a home supply. Nor is the importer the only middleman to add to the price paid for raw material; instances have been cited where six brokers received commissions on a single ore shipment in its transit from mine to consumer. With price so directly affecting extent of both home and foreign market, the non-productive middleman is to be avoided in securing the full benefit of the Nation's resources.

Engineering Efficiency.—What has already been attained in conservation of labor and material by American engineers constitutes a record of efficiency that is also gratifying in its promise for the future. Faith in large units of production is an essential part of the vision of full utilization.

No socialization of industry based upon this success of "big business" should be proposed that does not pay due regard to the cause of that success—namely, engineering efficiency. Any loss in that efficiency due to absence of sufficient incentive to individual initiative would constitute a bar to the full utilization that profits both producer and consumer. Even the premium put upon efficiency in private business has not always broken down the conservative objection to innovation, and the more costly practice too often has continued. Yet in planning the de-

velopment of the future on any new lines we must face the fact of the relative promptness of decision by private or corporate capital as compared with governmental action. This difference has been repeatedly observed in the past few months in connection with the adjustment of the mining industry to changing conditions, and unfortunately it is more or less inherent in the degree of authority vested in executive officers under a large corporation and the checks put upon action by Government officials of equal if not greater responsibility.

However large our faith in the efficiency of large units, we must not overlook the fact that the larger the corporation the greater the danger of its developing conservatism that may lessen adaptability to changing conditions. Thus the engineering efficiency of some splendid organizations remains that of the previous year and fails to keep in the advance, and so the powerful company often follows when it should lead. In corporations, as in the Government itself, sometimes the purchasing agent rather than the technical man is first consulted; the result is that the discussion revolves around prices rather than directs itself at production and use. Whether it is to meet a war-time exigency or the conditions of peace reconstruction, American industry must depend upon technical efficiency that is up to date.

Certainty of Tenure.—Closely connected with this thought of protecting the beneficial action of engineering skill is the need of giving security to investment in productive enterprises. In the development of mineral resources great risks are encountered—some of nature's making, others man-made. The efforts of the geologist, engineer, and metallurgist are all directed to overcome the natural difficulties attending the winning of underground treasure and putting it to human use, but the reduction of risks of human origin is a task no less important, and this belongs to the economist, the publicist, and the lawmaker. The life work of the engineer who aids and indeed directs the investor in establishing a mining enterprise on a huge scale may have its constructive effect largely nullified by the propaganda of over-zealous theorists and by the effects of ill-considered legislation. Thus to the ordinary business risk attending the new venture is added an equal uncertainty as to whether the rules of the game

will not be changed before the large investment reaches the dividend-paying stage.

To secure full utilization of American natural resources, our national effort must aim to reduce the risk to investment in productive industry. Public control of large units of production should properly be directed against what Professor Hess aptly terms "exploitation of the market,"¹⁸ but equal care needs to be taken that in seeking to prevent high prices the restriction may not also hit low costs and productive capacity. Cost is a datum plane which may be raised as well as lowered but below which price can not sink for any considerable period; while low price is of little social value unless the available supply meets the Nation's actual needs.

Equitable Distribution of Net Proceeds.—In the development of natural resources the division of the attendant benefits also has an influence upon the degree of utilization possible. The public's claim for a fair share is more and more fully recognized, but of comparable importance is the need of making the production of the raw material receive its share of the profits attending the transition from ore in the ground to fabricated metal. If the margin of profit for mining is small, the tendency, whether the resource be coal or oil or ore, will be toward exploitation and waste; only the richest and the most accessible part of the deposits will be mined, and wasteful use of both machinery and men will characterize the operation, with no benefit to the ultimate consumer and with actual loss to posterity.

Reference has already been made to the example of seemingly unwarranted increase for the differentials in the manufactured product. The margin between Bessemer billets and plates in July, 1913, was only \$6 to \$7 a ton, whereas in July, 1917, this margin had increased to \$107 and even \$169. In this period of four years, moreover, the billets themselves had increased in price about \$70 and Bessemer pig iron had increased about \$42 a ton, while the Bessemer iron-ore price at the lower lake ports increased only \$1.55. High labor and fuel costs certainly contributed to these increases, yet few will believe that the profits on steel plates in 1917 were not excessive or were equitably distributed

¹⁸ "Foundations of National Prosperity," p. 156.

between rolling mill and iron mine. It is to the public interest that the natural resource should receive its share of the return.

Government Coöperation.—Educational and investigative work by the Government scientific bureaus is a part of the Nation's contribution to the mining industry. To be most helpful, these investigations need to be coöperative rather than competitive, at least in spirit, and the geologists, metallurgists, chemists, and engineers in the Government service should be in closest touch with those in private employ so as to supplement rather than duplicate each other's efforts. Fortunately for American progress, a notable beginning has been made in this type of coöperation. England has only recently discovered that State-aided scientific research is an effective means of realizing on the natural wealth of the land, and with this discovery should be connected the realization that for such application of science to industry the Government is not to be reimbursed by any direct revenue from mines but must look for reward through the public benefits from the fostered industry.

In other ways the Government can promote and protect the industries that utilize these natural resources. Wise administration of patent laws has helped to give to American industry certain advantages, and as the effort is made for even larger utilization of raw material and water power and human labor, the protection of American genius must be continued. Nor can the public interest be best served unless encouragement is given to promotion of the right sort. The army of prospectors, who give their lives to a quest that is largely misguided and mostly unproductive of results, is essential to the industry, and so also are the schemes of new uses and new methods, for though most of these are visionary some of them reveal rare vision.

Governmental coöperation in aid of the full utilization of mineral resources finds its largest field in the help it affords to small producers and pioneers. The duty of the scientist in the public service is to serve the individual citizen or corporation of limited means and experience much as the consulting engineer serves the large corporation. For instance, many of the great oil companies, recognizing the paramount value of a knowledge of the geologic structure in the guidance of oil exploration and development, have secured the exclusive services of geologists

trained in oil geology. These strong corporations, most of which have lured away from the Government service a number of its best men, are able to organize geologic corps for themselves and to examine geologically great areas of untested lands in order to select more certainly the localities in which, other things being equal, the prospects for pools are most favorable and the hazards of dry holes the least. All this investigative work at private expense benefits the whole Nation by securing new supplies of the needed oil with the least amount of unprofitable drilling. Yet the small landowner, whether in an oil territory or a coal region or a mining district, also needs expert advice, and in the interest of both nation-wide efficiency and economy this aid can be given by Government bureaus which serve the public in the capacity of consulting metallurgist, engineer, chemist, or geologist.

FULL UTILIZATION THE IDEAL

Public Benefit through Use.—The dependence of the Nation upon raw materials calls for wise but full use. Natural wealth is not national strength except as utilization of resources is guided in the line of benefit to the people generally. And the value of mineral reserves lies in their use when and where they are needed.

Choice of Sources of Material.—Interstate commerce has become a vital function in the highly organized system of the United States, yet a certain degree of local and State and regional independence is most advantageous. Henry Grady's appeals for a larger industrial independence of the South were not sectional in spirit but truly economic. Especially is it true that transportation of raw material is not a desirable end of itself: not only does it add to the cost, but, as the country has learned this past year, the necessity of long hauls may become a source of industrial weakness and indeed a serious limitation upon national efficiency.

The remedy is a selection of sources of material that is logical rather than haphazard. Secretary Lane's order that Indian agencies and schools purchase coal from the nearest mines, the distribution of orders for anthracite required by the Army cantonments and other Government establishments among the mines

best fitted—as regards both location and equipment—to handle the respective orders, and the recent effort of the Montana Fuel Administrator to make that State self-sufficient in coal are all executive acts wisely responsive to present needs. No State can live unto itself, yet it seems logical, for instance, that Montana, which is blessed with large coal resources, should cut off at least all long-haul coal that in turn can better serve markets nearer its source.

Another economic advantage in the attempt to coördinate sources of material with centers of consumption is the larger degree of utilization thus made possible. Much low-grade raw material could be utilized in near-by plants, whereas only the ore of much richer grade could stand the transportation charge to a distant point. Eventually, too, this principle will be recognized and put into practice by converting high-ash coal into electricity near the mine mouth, thus using the copper wire for transportation of pure energy rather than the steel rail for carrying the train loads of mixed fuel and ash.

Economic Distribution.—The economic distribution of output of raw material is obviously of national importance, especially when the country in its industrial expansion experiences the growing pains due to limitations of transportation. Even before the demand for coal was so urgent, the following suggestion was made as bearing upon the cost of coal: ¹⁹

“In the item of transportation perhaps the most promising means of relief is that of reducing the length of haul. Though many a consumer’s preference for coal from a distant field over that from a field nearer home is based on special requirements, the deciding element in the preference of other consumers is simply the price, and this in turn may be largely due to a differential freight scale, which is thus not in the public interest if we admit the premise that it is wasteful to burn such coal in hauling coal into coal districts or past such districts, except in so far as quality requirements absolutely demand the long-haul coal.”

¹⁹ Smith and Leshner: “The Cost of Coal,” American Mining Congress: *Science*, vol. 44, pp. 763-772, December, 1916; also *Economic Geology*, vol. 12, pp. 42-55, January, 1917.

The zone system for the distribution of bituminous coal now enforced by the Fuel Administration is simply an adoption too long delayed of measures to use locomotives and cars to best advantage. The system of "carrying coals to Newcastle" or past Newcastle is economically wrong, and the substitution of the coal-zoning plan will have value after the war as well as at the present time, when car distribution so largely controls mine operation. The estimated saving of 160 million car-miles is national thrift on a large scale. Admittedly, under more normal conditions transportation saving should not be considered alone; for instance, the pooling of coal may work too much against the keeping up to a high standard of quality the output of mines which formerly produced well-advertised brands, and the zoning system which effects economy of transportation may overlook the requirements of special uses and thus defeat industrial efficiency. Not every kind of coal or variety of coke will serve the purpose of some users.

The need of controlling distribution in the public interest can be illustrated by many instances. That a coal company operating mines in southeastern Kentucky and Tennessee had more customers in Iowa than in any part of the intervening territory indicates enterprise in building up a market, yet the hauling of that coal across several hundred miles of another coal field, into a State possessing coal resources of its own, raises the question to what extent superior quality of coal justifies the long haul. The public is interested in the fact that it takes an average of $1/33$ of a ton of locomotive coal for every thousand ton-miles—that is to say, more than a ton of coal is consumed for every thousand miles a car of coal is hauled, so that unnecessary transportation of coal means a wasteful use of coal.

The economical distribution of other raw materials from our mines is also a large factor in industrial strategy. To attempt to equalize opportunities for establishing industries by means of freight differentials favoring this city or that manufacturing district merely introduces an artificial factor which can not affect the actual costs. Whatever the pronouncement of the rate-making body, the distance the locomotive travels remains the same. Since in the end the industry pays all the costs of the product, the "short haul" between mine and market is a natural and real advantage, and whatever the rate the nearer the source of raw

material to the place of manufacture the greater the advantage to the Nation. As has been pointed out by Professor Leith,²⁰ legislation can be anti-conservational when it prevents division of market territory among producers. Some degree of governmental control of distributing agencies might permit the coöperation necessary to prevent the "excessive freight bill due to overlapping of territory served."

Another lesson in thrift is being learned in the matter of car loading, and this has its beneficial effect upon the car supply available for the mineral industry. The Railroad Administration is listing offenders in light loading, and thus securing direct co-operation from committees representing the particular branches of industry involved. The result in the loading of fertilizer, for instance, is an average increase of 50 to 100 per cent over last year's practice. At a single terminal a railroad official reported for the month of March 2,222 more tons with 318 less cars. Whatever the degree of wasteful use of transportation equipment in the past indicated by these figures, the increase in car service now attained is unquestionably a real saving.

Cross-currents have characterized overseas commerce as well as interstate commerce. Economy in distribution, however, is being forced upon the world by submarine warfare in European waters in the same way that we are beginning to make the best use of our domestic transportation system, which is now inadequate by reason of car shortage, deficiencies in motive power, and terminal crowding. Through all this interference with the hitherto easy-going commerce nations are learning the difference between essentials and non-essentials, a distinction that will not lose its usefulness with the coming of peace.

Balancing of Present and Future Values.—Full utilization as an ideal forces the forward look. Brain and brawn are the two essentials in the utilization of natural resources, and it is of prime importance to unite these in the work. The suggestion that "conservation of labor" is a synonym for "engineering efficiency"²¹ is the happy expression of a truth seldom recognized. The higher purpose of engineering is not so much to save material as to increase man power. Whether or not America's wealth in mineral

²⁰ "The Foundations of National Prosperity," p. 264, 1917.

²¹ Chance, H. M., Address at Penn. State College, Nov. 5, 1915.

raw material is so vast that we need to give little attention to future requirements, it is certain that we must recognize American manhood as a resource whose present welfare warrants first consideration; the social advances of this generation largely condition if they do not determine the future of humanity. Thus must the mean be struck between a spendthrift people and a miserly nation—neither bequeaths to posterity its due.

The problem of balancing the present and future value of our resources includes financial factors involving interest and taxation, social factors concerning the welfare of the worker and the needs of the consumer, and engineering factors relating to technical advance and possibilities of utilization, factors which are themselves changing from year to year, with the net result that the unknown seems to outweigh the known. No better statement of opinion can be offered than Professor Leith's ²²—"that where drastic measures for the future come directly in conflict with present welfare, the size of our mineral reserves is so large and expanding so rapidly that it may be difficult to convince the community as a whole that future needs are sufficiently clear to warrant much immediate sacrifice. But if the introduction of certain conservation measures may reasonably be postponed, there still remain wide opportunities for measures not directly inimical to present interest, and indeed even favoring it."

Partnership of Nation and Citizen.—In a recent report by a British committee the opinion is expressed that possession of lands involves duty to the State: agricultural land by whomever owned ought to be well farmed; the State is justified in enforcing good farming. This logic applies to more than the agricultural interests of a country, and to a time of peace as well as a time of war. Every industry has its share in the national welfare, and a large degree of national strength must come through industrial practice that benefits the individual as well as contributes to the general welfare.

The partnership of the citizen with the Nation of course involves division of losses as well as of profits, and there is often a delicate balance between the claims of the individual and those of society. The social limitations now, of necessity, placed upon individualistic endeavor and enterprise seem at first sight to be

²² "The Foundations of National Prosperity," p. 264, 1917.

wholly negative and restrictive, but government control may also be positive and promotive. Indeed, it becomes equally incumbent upon both the individual business man and the Government official to recognize this idea of partnership. Measures of national defense can be other than appropriations for armament: the strengthening of internal industry will help as much as the strengthening of coast defenses, and such an investment of Government aid need not be entered on any fiscal statement as idle capital.

Our war-time adventures in political economy promise greatest success in those matters that will still demand attention after peace has been attained. Not only the war strength of the Nation depends upon the available supply of mineral raw materials, but also the national efficiency while on a peace footing, and many of the principles of governmental control now called into action must be expected to have almost equal force under after-war conditions. Governmental control of industry is too often opposed with the flat statement that private control can be exercised with greater intelligence and with equally high motive. This assertion means that the man directly interested in any branch of industry as the representative of the capital and labor it enlists can be better trusted than any Government official representing the people's interest both as consumers and as producers. The practical experience of the man in the business is thus set off against the disinterested "theories" of the public servant. If, indeed, brains as well as high motive are not available for public service, a serious indictment is thus laid against representative Government: democracy fails to act intelligently. The present-day experience, however, shows that Government control is the more necessary the larger and the stronger the units of productive industry concerned; and yet such national control can promote the interests of the industry itself—at least as a whole if not in every part.

Industrial independence as a war-time issue is made imperative by the shortage in cargo carriers. Some citizens most concerned in the foreign trade have shown a willingness against self-interest to coöperate fully with the Government; with others conservatism and lack of realization of what the shipping program means have resulted in a passive attitude; while it must be added that too often at first the hand of the importer, the ore

buyer, the acid maker, the steel maker, or the alloy maker has been felt in short-sighted opposition to each move made for the development of domestic supplies of manganese, pyrite, chrome, or graphite. This influence not only expresses the natural conservatism of the industry, whose long-tested metallurgical or chemical practices are threatened with change, but with this, or often behind this, there is present even greater concern for well-established trade connections and relations. The entrance of new producers into the market or the development of a substitute supply might endanger informal and secret arrangements whereby production is distributed among the group of buyers. The old policy that involved the "gentlemen's agreement" is not wholly inactive, and indeed fears are expressed that without such intelligent guidance the market might "run away." The public-service nature of "big business" is perhaps most apparent to those whose practical experience may be limited but whose public calling compels them to see as a whole the reactions between all the industrial and commercial components in the great process of winning the raw material and converting it to the use of man.

In the present nation-wide task of making industry adequately serve the Nation stimulation of production and control of distribution are the principal items. The last ton of raw material absolutely needed is perhaps the most valuable ton, and for it the largest cost is justified. If in military strategy it is the last blow that wins the battle, it may be equally true that in the Nation's industry the last ton of acid counts for final success. To secure maximum production there needs to be both realization of responsibility and expectation of adequate return. The appeal to the patriotism of the Arkansas mine workers that every ton of manganese ore they mined would help to offset the shipping shortage and thus enable ships to carry food to France rather than bring ore from Brazil was successful, yet the patriotic labor and capital employed in the Arkansas mine are both ineffective except when the price paid for that ore by the steel companies is sufficient to pay operating costs. And, to continue the illustration, that supply of American manganese which can not yet equal the normal demand must be distributed fairly among the users in proportion to their needs. Whether the scarce commodity be coal or manganese, platinum or fuel oil, competition among buyers might benefit the producers at a serious loss

to the Nation. Hence control of both price and distribution through Government agencies rather than by any inner circle of this or that industry becomes necessary in the public interest.

The Government's function as a middleman, however, can well be limited to bringing the producer and consumer as close together as practicable. If six brokers get commissions on the same shipment of ore either the price to the consumer is too high or the return to the producer is too low, or both. The ideal policy of control is of course one that will surely prevent profiteering without discouraging that private initiative which is essential to efficient business. As partners, Government and industry need costs low enough to insure some profits to divide between producer and consumer.

Résumé.—America's unparalleled assets in mineral reserves have met the war-time test, and an unexpected degree of self-sufficiency in raw materials has made possible the marvelous expansion of manufacturing industries. The resultant increased burden put upon transportation has made too apparent the need of logically directing the agencies of distribution and of thus securing efficiency through economy. With this lesson in national thrift, taught by war, has come the realization that prices may be too low as well as too high, that adequate supply has larger meaning to the nation than cheapness, and that stabilizing industry by reducing hazards to a minimum takes away the only justifiable reason for large profits. So, whether the emergency has expressed itself in the demand for greater engineering efficiency, for a many-fold increase of domestic output, for a much more economical use of transportation, for the rigid control of distribution, or for the fixing of prices high enough to insure production and low enough to prevent profiteering, these novel experiences in political economy are of more than passing interest. Most of these forward steps will not be retraced.

All has not yet been accomplished, however, that is plainly America's task. Great as has been the "speeding up" during the past two or three years, infinitely more remains to be done. The shipping problem has required Americans to think in new terms, and unfortunately every one does not yet understand the new language, while many refuse to listen to an interpreter. There is too much thinking even yet in terms of the business and

industrial practice of yesterday, when to-morrow's supply of certain raw materials will be half that of yesterday. Definite substitution of lower-grade ores is the only answer, and America should count itself fortunate that it has domestic supplies that can be so utilized. To-day is a time when highest efficiency means adaptation to new conditions, and the sooner those conditions are accepted as inevitable the sooner America will be truly independent and thus able to do its full part.

The largest war profit will come in America in the growth of our ideals, and among the ideas linked with these larger ideals will be the greater realization of the interdependence of Government and industry. It is only in a democracy that the Nation and the citizen can be partners on a plan that divides the profits among the whole people on the basis of respective service. With that ideal the war-time lessons in industry can be made to count after the war for a greater because a happier America.

VI

TECHNICAL RESEARCH

(A) GENERAL ASPECTS

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The Importance of Research in Reconstruction.—It will be my object in the following lines to show how scientific research forms the keystone to the federal arch which the other matters of this volume properly constitute. There is one thing which this war will probably teach us. It is that a successful democracy must be made up of men who are interested and active in the undertaking itself. We must even take a hand in the making of our own intelligence.

The world advances by change, not by standing still. One nation passes another by exceeding in some critical way the efforts of the first. Judging by the past, taken as a whole, this seems a fair and, in any case, a persistent method. A nation which wishes to lead in any way can hardly expect to do so by merely imitating some other nation, though it may progress by energetically profiting from the other's experience. And so I hold that learning more and using the knowledge better is the criterion, and thus research keys the arch which supports our mineral resources, our transportation, our international commerce, our public debt, our foreign exchange rates, and our other problems.

Research is only the discovery and utilization of new facts

¹B. S., 1890, Massachusetts Institute of Technology; Ph.D., 1896, University of Leipzig; Associate Professor of Chemistry, Massachusetts Institute of Technology.

and phenomena from an unstinted supply offered by an exacting but bounteous nature.

Take a highly educated people, of the kind who make two or more blades of grass grow where one or none grew before, and let them exceed their competitors in this quality, and all their other problems will rapidly solve themselves. If we know how to make more than others and how to do it better, and if, then, we do it, the mineral resources are found and utilized, our international commerce is assured, and our exchange rate is safe. These are concomitant details.

But I am not writing merely of increased speed in sowing grass seed. I am thinking more of the knowledge which makes new tractors, plows, planters, cultivators, and reapers a part of the problem in which also new knowledge of artificial fertilization and grass growing are a small part.

If we cannot copy from other countries and thus grow to excel them, we may still excel by the good, old-fashioned, but difficult way of accumulated experience. We may learn from the experiments of others and add increments of our own. When this is undertaken as a job, it becomes research.

The Unconquered World of Matter.—Through the countless ages of man peoples have reached out for other worlds to conquer. Usually their ambitions have been strictly geographical. The advantages gained by this warfare may fairly be questioned, but few will question the value of reaching out for greater realization and utilization of the materials and forces right about us. In a geographical hunt the unknown fields became continually diminished, and now the whole world has been sufficiently fought over. But in the possibilities of matter, in the field of forces, in the realm of physics and chemistry the portion in which no claim stakes are visible is growing by leaps and bounds. Each discovery of a strange alloy puts a new cog in a thousand moving machines. Each added note to the knowledge of living matter reduces the sum total of human suffering. Each new fact of cosmic truth raises our mental periscope another notch and stimulates us to be less like the brutes.

I am considering engineering and scientific research because they interest me most, but I would not say less of many fields of knowledge where new truth may be attained. The biologist, the

bacteriologist, the surgeon, the entomologist, the astronomer, and even the experimental psychologist are but physicists and chemists in specialties.

It comes back to this: we need to know more about the things that surround us. Wherever we have inquiringly knocked, the way has always been opened to us, but even yet we have not realized the simplicity of the process nor the certainty of the result.

Does Knowledge of Matter Make for Materialism?—With the fanatic fear of the Navajo who will not face the truth-recording camera, we dread lest much real knowledge make us materialists. There is, fortunately, in all of us an inborn cry against loss of those human qualities which make for affection, honor, and the other golden attributes, and we will not be merely materialistic. It may be said by some that knowledge and the study of mundane things is responsible for world wars. It is truer that ignorance of these things accounts for the war losses.

We might be tempted to assume that the greatest idealists cannot simultaneously be helpful and hopeful materialists. Here our own advances prove the contrary. We think at first of the incomparable qualities of love and sacrifice, of cheer and sorrow. They must be, we say, the fundamental things with which matter has nothing in common. Perhaps here lies the mistake. Human qualities make good use of material coin. Service to mankind bears the same relation to engineering as faith does to works. One without the other is dead.

J. P. Munroe, of the Corporation of the Massachusetts Institute of Technology, recently said: "If the coming generation is to be educated to take its proper and effective place in the vast complex of modern society, . . . it must be brought, as far as possible, into real contact with all the elements which are building, out of the resources of nature and of man, an ever more complicated, ever more efficient, and ever more spiritual world."

This must be more effectively carried out with the present generation. We must begin with ourselves. We must contend in ourselves against the desire for more product for less effort. We must learn that more product, whatever it is, can come only from wiser effort. For example, a general vote for a six-hour working day must be offset by a 33 per cent increase in intelli-

gence to carry even the present load, and the average man or his son must learn to know all about this arithmetic.

The Temporary Changes Resulting from the War.—The war brought on many temporary changes. We were suddenly forced to depend on ourselves for many things which other countries had supplied us, including new knowledge. This was a health-giving exercise. It was being thrown into the water to learn to swim, but it generally succeeded. We made glass and we made dyes. We found new manganese and we made magnesium. We dug deeper for platinum, chromite, and magnesite, or we found substitutes. We attacked our air for explosives and our waste products for alcohol. We made acetone from coal and lime and took toluol from our city gas. These are temporary changes, and yet after a fashion we stick a feather in our cap and say, "What a great boy am I!" But all these industrial changes were forced upon us, and our whole dye business is about the size of our chewing-gum industry. We scarcely put an original thought into any of them. We were in the water, we remembered the motions of the swimmer, we tried them, and they worked. We are still being punished for not having been more active years ago. Everything was on hand except our willingness. We should have learned before.

We cannot remain a first-class nation and still take our cue from another. We cannot depend on foreigners to give us our working drawings. We are strong in commercial development; we must become stronger in its prerequisites. We have the environment, we have the need, we have the soil in which the celestial plant of research will grow, but we are short of the seed. We need the interested young student of things as they are, the appreciative worker in matter, no matter what it is. We need to see that back of all useful advances are usually painstaking original study and experiment.

Engineering has never before reached the active state it enjoys at present. The research which has largely been the basis for it has been the work of the more highly educated nations for nearly a century. The war has brought this definite condition to our recognition. It calls for a gospel of work, with mind and hand. It carries with it the high significance of a knowledge of the earth and its contents. It involves the propriety of doing

something about it and sounds the warning that those nations who do not utilize the boundless grants of Providence and do not look into her vast storehouse of possibilities will probably become second-raters.

The Necessary Readjustments.—We shall have to readjust along the lines of training. Most of our present trouble may be traced to lack of knowledge. Sixty thousand inventors send in suggestions for devices to destroy the submarine. One per cent of them may indicate some knowledge, but the rest display only a desire to serve, which, owing to lack of knowledge, is out of the question. What a crime that this effort cannot be better directed! Why not better equip these willing minds?

Our water powers are still being allowed to run to waste, when we ought to force industries to use them and conserve our limited coal supply. If our oil can last but twenty-five years more, as is threatened, what is a practical solution?

We are defying the laws of elementary physics in public and listening to the vagaries of Giragossians, Keeleys, Cooks, and Jernegans. We expect to burn water in our automobiles and use our coal ashes over again. The sea is full of gold, so why work?

But maybe the whole world is finding itself. Witness the great increase in physical and chemical knowledge during our own lives and the enormous development of what we call engineering, which is but the application of knowledge to our needs. When we analyze the knowledge we find much of it is only partial understanding, a still insufficient application of the funds of nature.

A Triumph of Research.—The aeronaut who alights like an eagle in front of the tepee of the ignorant Sioux on some barren western reservation carries with him on his airplane more science and engineering than were ever collected into any one structure before. It is more wonderful than the Sioux's wondering capacity. It may be said to be a little sample case of the hereafter carried into the past. After thousands of years the Indian stands but little ahead of the cave man or the cave bear. He may have highly developed senses and be capable of all the mental processes of the agile aeronaut, but he hasn't given the material about him the thought it deserves. He may be as strong in worship, as

pure in affection, as advanced in ethics, and as deeply introspective and philosophical as the white man, but he lacks what civilization has always been especially striving for and what it will not stop seeking—development. The path of the aeronaut has been through observation and study of the identical materials which surround but are invisible to the Indian. The airplane carries some of the same rock oil the Indian used for “big medicine,” but the oil drives and lubricates an engine which he cannot in the least understand. It is made from the red ocher and the clay he has always used for paint, and by means of the fire and the waterfalls he has always known. It carries a wireless telephone so that the voices of friends, miles removed, are heard and recognized. It carries a box which produces petrified vision and has an eye with a power like many eagles. It drops bolts of thunder which produce a valley where a hill just stood, and it shoots many little arrows more deadly than the whole Sioux tribe. It carries a small sun which shines at night and projects its light wherever wanted, and lo! the very blanket of the man is heated by harnessed lightning in wires woven with the wool. A little box tells the aeronaut how far he came since last he landed, and, wonder of wonders! it directs him perfectly to a new place he has never seen before. When he soars aloft he knows just how high he is, and he is not lost when flying in the dark. But this is all and only because experimental work has been done. All these things and much more resulted from the inquiries made into the matter which surrounded the Indian and surrounds us and which certainly still contains infinitely more of matter just as difficult to grasp as the aero is to the Indian.

In our complacent and still relatively ignorant present we are Indians. Though our faces may be turned toward the light, our feet are still reluctant. Potentialities of things we call clay and dirt lie all about us but are unnamed or dimly seen. We use them more extensively than as war paint, but we still know little about them. We appreciate them to the extent which some one's studies have warranted. I suspect that their real value is measured only by the elasticity of our own minds. We see that the Indian cannot appreciate his position, but do we appreciate ours? The Indian often longed for the pinions of the eagle, but his wistful thoughts fell far too short. Countless facts of earth and air, of oil and ore, of force and fire had to be gathered first. Is

it possible for us to see how clearly the future depends on the orderly advance in knowledge of matter wherein lie all our yet inconceivable possibilities?

A Policy to Follow.—This would be a barren article if it did not give a remedy for our malady. There is a sure cure. Like many other good things, its prime merit lies in its simplicity. We have got to depend as a people more on our average wisdom than on our occasional wizards. Edisons may be as rare as Halley's comet, for we haven't learned the wizard's orbit yet. We must regard them as rare good luck, bonuses of a bounteous nature, or unearned increments of civilization. Meanwhile, we must increase the number of young men who can study the facts and phenomena which are about them and who, with hand and brain, will add to the sum of useful knowledge. We must simplify the method by which such men are matured in our country. There is no other sure, no other promising way.

There has never been in America any real attempt to do this work. As a rapidly growing and immature collection of States, we have gone about as far in educating ourselves as each community believed its purse should bear. Some western States have been almost as bold in fostering research as some little foreign cities, but collectively we have neglected the higher education of everybody. This poor policy has cost us dearly.

One contribution of the war must be a real demonstration to the American-born youth that he may count on as good a chance of being an educated contributor to the new knowledge and to the new activities of this world as if he had been born in Russian Riga, in Saxon Leipzig, or in some other little foreign university town. His father must make this possible.

Heretofore a college has too often been either a bore or a sport, a grind or a joke. The more studiously inclined saw only Newman's "heart-piercing case that stood at hand for the reflective mind":

"To consider the world in its length and breadth, its various history, the many races of men, their starts, their fortunes, their mutual alienation, their conflicts; and then their ways, habits, governments, forms of worship, their enterprises, their aimless courses, their random achievements

and acquirements, the impotent conclusion of long-standing facts, the token so faint and broken of a superintending design, the blind evolution of what turn out to be great powers or truths; the progress of things as if from unreasonable elements, not towards final causes; the greatness and littleness of man, his far-reaching aims, his short duration, the curtain hung over his futurity; the disappointments of life, the defeat of good, the success of evil, the pervading idolatries, the corruptions, the dreary, hopeless irreligion, that condition of the whole race so fearfully yet exactly described in the Apostle's words: 'Having no hope and without God in this world'; all this is a vision to dizzy and appall and inflicts upon the mind a sense of profound mystery which is absolutely beyond human solution."

With a certain type of education, the greater its degree the higher becomes the unhappiness from dogma and introspection. It may be true that this profound mystery is "absolutely beyond human solution," but from the lower animals who do not know, through the lower peoples who do not care, to the "starving chemist in his golden views supremely blest," there are signs that hopelessness is neither a virtue nor a necessity.

Our brightest and most daring students often looked for something with more "pep" than the "dope" which a poorly supported faculty supplied, and they lost their bearings. The words of wisdom from the mouths of ill-fed professors did not have the true metallic ring of the sound of a monkey wrench, and the boys chose the wrench. They never saw education from the standpoint of service at all, though it was there. They were neither slackers nor cowards. Those that failed to appreciate our system of higher education were usually the first to enlist as airmen for France. We had merely failed to show them. We shall probably have to pay our college presidents and teachers as much as we pay some of our ball players, and also let the "lesser leagues" in education have those of "lower batting average."

Great Britain, among a score of war activities, has lately so increased the field of its national physical laboratory that it is now spending at the rate of over half a million dollars a year for research. It carries on scientific work along chemical, metallurgical, and physical lines, with the coöperation of the industries

and of the scientific societies. This is a wonderful stride for a country whose industries were entirely hidebound and of which one authority wrote: "Science in the eyes of the average Englishman consists of a new-fangled set of ideas, all very well for those who can afford to study them, but in his opinion not of such daily practical importance that it is necessary for the Nation to pay attention to them." An ideal condition might result if the coöperation reached such a stage that no efforts in new work were duplicated, and if all results were quickly and extensively utilized, and if the process were perpetual. This is too much to expect. It is like looking for the full corn in the ear in the first blade. England is, however, utilizing for immediate service more of the latent energies of her trained scientists than heretofore. It is not a complete after-the-war policy.

Japan is now expending several million dollars in organized Government research for industrial uses. Even this is a lesson to us. But Japan and England will have to find the men or encourage them to find themselves, before such plans can be more than makeshifts. A single large laboratory for the study of nature's laws, no matter how great it may be, and no matter to which particular end it directs its attention, is not our cure. We should like to insure the continually reinvigorated advances into fields of unlimited possibilities by a growing army of wide-awake investigators. We should like to see the men produced who will, in turn, by their inquisitive example, kindle the spark in others. This is a system which puts the wand into the hands of young men in every part of our country. If we want Faradays, we must see how they were produced and imitate the method. Intimate contact with trained students of nature is as sure a method in science as in the training of a good mechanic or an artist. We are now about at a point where good leaders of scientific thought and work can be settled in the widely separated parts of our country and in institutions where learning up to a certain stage has already been the aim. A few are already setting this example, but the support is inadequate. We hear of the influence of men like Nichols and Noyes, Neff, Stieglitz, Richards, and Millikan, but we don't usually hear of their sacrifices. Every one of these and many others should be a nucleus about which research men would be trained. Every year a new supply of men who were trained in truth and in the practical methods of

attaining it in new phenomena would be added to our useful supply. We have heretofore postponed this step in America. Our efforts have been applied to producing men who could repeat the old stunts with the old tools. We have trained thousands of analysts in chemistry and physics. Scarcely a ton of steel gets by them untested. We have trained thousands of engineers up to the point where they were acquainted with the main history of their profession and could repeat its standard operations, but we have generally stopped there. We have taught them to catch up to civilization in its march. But the fire of conquest of new fields born or bred in our professors has been slowly quenched for lack of oxygen. Now we must add to these preliminaries a method and a procedure which go to make the pioneer. They consist in merely following the straight road already mapped out by the histories of those who have hitherto contributed to our new knowledge in all countries.

TECHNICAL RESEARCH

(B) ENGINEERING AND ALLIED SUBJECTS

By A. A. POTTER¹

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Effect of the War upon Technical Research.—The world war has resulted in a realization of the value of technical research such as has never existed before. This was brought about by the requirements of modern warfare, by the changing industrial and economic conditions, and by the fact that every nation, whether belligerent or neutral, has found it essential to be as independent as possible of all others with respect to its needs for sustaining life and industry. New industries had to be developed, and the old industries were forced to take up new lines of manufacture. All this required the acquisition of new knowledge, which could best be obtained by technical research.

The effect of the war upon research as seen by men prominent in engineering, in technical education, and in industry in various parts of the country is shown by the following quotations:

"A number of branches of engineering have advanced on account of the war much more rapidly than would have otherwise occurred, so that they are in a state which would not normally have been reached for many years in the future. This rapid advancement has given such an impetus and has so broadened the field of operations that engineering research will continue on a much greater scale than was the case before the war. All engaged in engineering and in industry will have to adjust themselves to the greater amount

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of research work and more rapid changes in states of the various arts and in the less continuation of old customs and apparatus."—SANFORD A. MOSS, Engineer Turbine Research Department, General Electric Company.

"The necessity for speeding up production has attracted the attention of the whole civilized world to the need of a scientific basis for everything of an industrial nature. The war has made the average practical man familiar with the term *research*, and he no longer is apt to consider it as high-brow stuff. On the other hand, he is rapidly appreciating the fact that it may play a very important part in his own business."—C. R. RICHARDS, Dean College of Engineering, University of Illinois.

"This war has stimulated research immensely, and the stimulus will be felt after the war is over, but I do not consider research any more necessary after the war than before it."—IRA N. HOLLIS, President Worcester Polytechnic Institute.

"The greatest change which has come about appears to me to be the overpowering impression which has been produced in the minds of the people of the world of the importance of engineering with relation to everything in life. I believe this will stimulate activity in the extension of what I may term engineering knowledge to meet the new demands which are sure to be made."—F. W. McNAIR, President Michigan College of Mines.

"The importance of technical research has been illustrated in every field of engineering concerned with the war. Success in war depends upon the quick adaptation of new devices for offensive as well as for defensive purposes. . . . The conservation of material resources has been emphasized as never before. . . . Economy in the production and in the use of materials, prevention of wastes, and utilization of materials formerly wasted are becoming more important every day. . . . The need of nations to be economically independent has become of much greater importance. . . .

Technical research is essential to utilize our resources economically, to develop satisfactory substitutes for materials formerly obtained from other countries, etc."—C. R. JONES, Dean College of Engineering, West Virginia University.

"Research is of increasing importance because we must know the facts relating to the use of the principles of science. Our industries must proceed with an exact knowledge of facts rather than in a haphazard way, as has been frequently the case."—L. P. BRECKENRIDGE, Professor of Mechanical Engineering, Yale University.

"The tremendous production of war munitions, made necessary to supply our needs and those of our Allies, has brought to us very many problems which are different from those on which we were working prior to the war. . . . These problems are not different in principle but only in detail from those which we faced prior to the war, and much of the research which is carried on, while temporary in character, will be of direct value when the war is over. The war is causing the depletion of many materials which were plentiful prior to the war, and substitutes for these must be found, both for war purposes and for peace purposes after the war is over. High prices for many things will undoubtedly continue after the war, and properly directed research can do much to find substitutes, to lower prices, etc., in the period of reconstruction after the war."—C. E. SKINNER, Director of the Research Laboratories, Westinghouse Electric and Manufacturing Company.

"Among the changes and hardships with which biological laboratories were confronted, especially during the first year of the war, were those pertaining to the dearth of reagents which had previously been purchased abroad. To mention one case, after the war had begun America found herself without a supply of peptone for bacteriological work. The basis of all research in bacteriology depends upon the proper growth of various organisms, and this in turn depends upon accurately prepared culture media. It became necessary

for American bacteriologists to provide substitutes for peptone, and this meant much research.

"As every one knows, America has gone far toward readjusting herself to conditions as illustrated above. Research is convincing us that we do not necessarily have to depend upon products made in Germany."—WALTER E. KING, Junior Director, Research Department, Parke, Davis & Company.

"Greater activity in biological research became necessary on account of the new and acute changes in environment resulting in new forms of maiming, shock, poisoning, and the trench diseases produced by crowding, ventilation, exposure, contact, etc., increased importance of venereal diseases; reduction of food reserves, etc."—Major SAMUEL C. Prescott, U. S. Army Sanitary Corps.

Technical Research in the United States Before the War.—It is a well-known fact that researches in engineering as well as in other branches of science and learning had until very recently been greatly neglected in the United States. There was little appreciation of the value of original investigation, and very few men were willing to take up research as a life work.

For a number of years before the war, however, considerable attention was given to technical research by the large electrical, chemical, and metallurgical industries. The General Electric Company, the United States Steel Corporation, the Eastman Kodak Company, the Bell Telephone System, the Du Pont de Nemours Company, the Westinghouse interests, the United States Rubber Company, several of the prominent automobile manufacturers, and other large manufacturing concerns maintained research laboratories, at considerable expense.

Some of the prominent industrial leaders encourage fundamental researches, as they are convinced of the ultimate value of all investigation. It is being realized more and more that research, while often not leading to the solution of the particular problems under investigation, will usually result in the development of new truths in the way of new processes or of materials with new properties. This has been illustrated many times in connection with technical research—for example, when the recent ex-

periments to eliminate dust in cement plants resulted in recovering potash as a by-product of cement manufacture.

Engineering Research in Government Bureaus and Departments.—Several of the United States Government departments and bureaus have been carrying on researches of the utmost value to industry. Among these, the Bureau of Standards of the Department of Commerce, the Bureau of Mines of the Department of the Interior, and the various bureaus of the Department of Agriculture have been among the most important factors in standardizing our manufacturing, mining, and agricultural methods, in increasing productivity, and in lessening the waste of human life and of human energy in the factory, in the mine, on the farm, and in the home.

The activities of the Bureau of Standards are stated by its Director to include investigations relating to standards of measurement, of physical constants, of quality, of mechanical performance, and of practice.

Correct standards of measurement are of great importance in all phases of technical research as well as in industrial processes. By the determination of physical constants, standards of quality of materials, standards of performance for machines, and standards of practice the Bureau is able to serve the research workers and designers in every branch of industry. The program of the Bureau calls for the performance of technical investigations of the greatest variety and highest grade, as is evident from the following partial list of problems it studied during one year: Linear expansion of materials, development of an optical protractor of great accuracy and of other special instruments to be used for the testing of munition gauges in large quantities, development of an inexpensive balance of high sensibility, determination of density of materials for airplane construction, investigations on aeronautic measuring instruments, determination of refrigeration constants, thermal conductivities of insulating and structural materials, fire tests of building columns with various kinds and thicknesses of fireproof coverings, effect of temperature on the physical properties of steel, electrical investigations of military character including radio testing, a study of the magnetic properties of steel, investigations in photometry, telephony, photography, balloon gas, electrotyping, and electroplating, fire

extinguishers for submarine chasers, gasoline intensifiers, aeronautic radiators and engines, railway materials, physical properties of earths, cement, concrete, stone, gypsum, tile, brick, clay products, and lubricating oils.

The function of the United States Bureau of Mines is to carry on such investigations as will lead to increasing safety and efficiency in mining and to a more efficient development and use of our mineral resources. Among the important subjects covered by technical investigations of the Bureau completed or in progress may be mentioned the following: Mine fires, mine gases, mine accidents, inflammability of coal dust, explosives for engineering and mining operations, mine lamps, smelting ores in the electric furnace, effect of volatile matter in coal, deterioration and spontaneous combustion of coal in storage, washing and coking tests of coal, producer gas, flow of heat through furnace walls, briquetting tests of fuels, transmission of heat in connection with steam boilers, smoke abatement, economical utilization of low-grade fuels, cracking processes for increasing the yield of gasoline from crude petroleum, extraction of gasoline from natural gas by the compression and absorption processes. Researches also are being conducted by the Bureau of Mines, in cooperation with other agencies, for increasing our supplies of nitrogen, potash, nickel, and manganese.

The United States Department of Agriculture carries on, besides agricultural research, engineering investigations in connection with road building, road materials, irrigation, drainage, farm machinery, farm power, and similar problems of value to the agricultural industry.

The war conditions which demand greater activity in agricultural research are mainly the shortage of food, feeding stuffs, fertilizers, and labor, and the Department of Agriculture and the experiment stations are bending their efforts principally to the problems presented by these conditions.

Much attention is also being given by the Department of Agriculture to the discovery and profitable working of sources of potash and to the question as to how necessary this substance is in the feeding of crops on the different soils.

The Mellon Institute.—Among the most interesting research organizations in the United States is the Mellon Institute of In-

dustrial Research, at the University of Pittsburgh. Researches at this institute are carried on by Fellows, who receive their compensation from the individuals or the companies that have new problems to solve. The Mellon Institute furnishes such facilities as are necessary for the conduct of the work.

The idea of this system of practical coöperation was formulated by Dr. Robert Kennedy Duncan, who established in 1907 the first industrial fellowship at the University of Kansas through a grant from a manufacturer of launderer's material. The first industrial fellowship at the University of Pittsburgh was started by Dr. Duncan in 1911. In 1913 the value of this type of coöperation between science and industry had become so well recognized that this work was established on a permanent basis through a gift from Andrew William Mellon and Richard Beattie Mellon, of Pittsburgh. During the six years from 1911 to 1917 sixty-four distinct concerns have endowed 147 industrial fellowships at this institute to study the problems in which they were interested.

The investigations carried on by the Fellows at the Mellon Institute include such subjects as the corrosion of iron and steel, problems related to the manufacture of food, problems related to petroleum, the development of steam power plant accessories, hydro-metallurgy, the fixation of nitrogen, and the utilization of mineral wastes.

The Mellon Institute and similar research organizations are in a position to assist the smaller industries, which cannot afford to develop extensive research laboratories. Dr. Raymond F. Bacon, director of the institute, states that its work has convinced manufacturers that industrial research properly carried on is profitable, and they have thus been encouraged to establish well-equipped research departments of their own.

Technical Research in Colleges and Universities.—Besides the research laboratories of the great industries and of the Government, the educational institutions of higher learning are important factors in creating new knowledge. These educational institutions, which are scattered all over the United States, make available research facilities at points where there are local problems. As compared with the industrial laboratory, the university or college laboratory has greater freedom from interruptions, an

atmosphere which is sympathetic to research, and no necessity to safeguard results by secrecy.

Investigations in engineering and in other branches of technical research have at all times received considerable attention and much encouragement in our universities and technical institutions. Teachers in universities and colleges recognize that activity along research lines enables them to keep in touch with the progress of their profession, while commanding the attention of their students and the respect of their associates.

The agricultural experiment stations which were created at the land-grant institutions by the Hatch Act of 1887 and which are receiving additional Federal support for agricultural research in accordance with the Adams Act of 1906 have been the most important factors in advancing scientific agriculture in America by solving local as well as national problems. As a result of the researches carried on at these institutions upon all phases of animal and plant production, disease prevention, and other agricultural problems, the business of farming has been placed upon a firm foundation. The liberal contributions of the Federal Government for research in agriculture are being supplemented by appropriations from the States for research of the same type. About \$1,500,000 is being spent annually by the Federal Government and nearly \$2,000,000 by the States for research in agriculture, apart from teaching and extension work.

Technical research at educational institutions along lines other than agriculture receives no support from the Federal Government, and only a few of the States have appropriated funds for carrying on researches of value to our manufacturing and transportation industries.

The advantages to be derived from systematic experimentation in engineering at educational institutions became apparent many years before the war. Those who were familiar with the benefits which resulted from the establishment of agricultural experiment stations made several unsuccessful attempts to secure Federal aid for experimentation in engineering and in the other branches of the mechanic arts. Several institutions have organized engineering experiment stations, without waiting for Federal aid. The University of Illinois and the Iowa State College were the first to take such action, in the winter of 1903-1904. They were followed by the University of Missouri, the Pennsylvania State Col-

lege, the University of Wisconsin, the Ohio State University, the Texas Agricultural and Mechanical College, the Kansas State Agricultural College, Purdue University, and several other universities and colleges.

The investigations of these engineering experiment stations at educational institutions, notably those at Illinois and at Iowa, have made great contributions to engineering and manufacture by the discovery of new properties of engineering materials, by increasing the efficiency of several industries, and by creating interest in technical research. Dr. Henry S. Jacoby, a prominent civil engineer and educator, says:

"The results which have been secured by the engineering experiment station at the University of Illinois, supported by the State, show how fruitful may be such a station associated with a university. It is hardly possible to overestimate the aid rendered by that station in the development of a rational basis for the design of reinforced concrete since this new material on construction was introduced in the country. This is but one of many subjects investigated by that station, whose good work is recognized by engineers in other countries, as well as in our own."

The same idea is set forth by Dean F. E. Turneaure, of the University of Wisconsin:

"The present activities in Washington on the design of concrete ships emphasize the importance of research work which has been done in recent years in college laboratories on reinforced concrete. A very large part of the information on the subject has come from such laboratories."

The awakening which the war produced has led to renewed activity among the advocates of Federal support to technical research of value to the industries. Those interested in the development of all our resources and in encouragement to all American industries, small as well as great, have felt that Federal assistance for research at educational institutions would aid in developing the resources and industries of the various States, would popularize technical research, would train research men for the

great industries and for the Government, and would react beneficially upon the instruction of students in technical institutions.

This increased interest in technical research at educational institutions resulted in the Newlands bill ² for experiment stations in engineering to parallel the experiment stations in agriculture at the land-grant institutions. This bill received considerable support from the prominent research men of this country, who were anxious to have all other branches of research receive the same recognition from the Federal Government that agricultural investigation now enjoys. Many also felt that the passage of the Newlands bill would promote more extended and more generous support of all phases of technical research, not only in land-grant institutions but in all technical educational institutions and in the industries. Several other bills were introduced recently, but all met the fate of the earlier efforts for Federal support of engineering research. This was due mainly to the lack of active interest among engineers and those interested in the industries.

The war is bringing about closer coöperation between the Government, the manufacturers, and the educational institutions. As time goes on the Federal Government and the industries will be giving greater recognition to technical research and will be willing to recognize the field of research at technical educational institutions, where attention must be given mainly to investigations which will advance knowledge of science and of industry and to the training of research workers for the Government and for the industries. The educational institutions will also become the technical research laboratories of the smaller industries and will be concerned mainly with the local problems, as research in close touch with local industries can best be carried on in many small laboratories. Before long Federal support will be given to technical research which can aid the development of our natural resources in the interest of the military and industrial preparedness of the United States.

Research and the Engineering Profession.—Several of the national engineering societies are also giving considerable attention to research. For example, the American Society of Mechanical Engineers has subcommittees dealing with investigations on fuel

² Senate Bill 4874, 64th Congress, 1st session.

oils, materials, safety valves, worm gears, lubrication, clinking of coal, steam flow meters, machine tools, etc.

A noteworthy incident in the history of the profession of engineering in the United States was the inauguration of the Engineering Foundation on January 27, 1915. The Engineering Foundation is a fund to be administered for the advancement of research by the arts and sciences connected with engineering, for the benefit of mankind, the basis of which is the initial gift of a considerable sum for that purpose by Ambrose Swasey, past president of the American Society of Mechanical Engineers.

The value our Government is attaching at the present time to research has been illustrated by the establishment of the United States Naval Consulting Board and of the National Research Council. The Naval Consulting Board was created in August, 1915, to coöperate with the Naval Advisory Board and consists of representatives from eleven engineering and scientific societies. Two representatives have been chosen from each of these organizations, with a view to obtaining the most advanced thought and experience in the various lines of engineering activity and technical research. Technical investigations of the utmost value to the country have been carried on by the Naval Consulting Board in coöperation with other scientists. These researches covered anti-submarine devices of many kinds, the production of nitrate and of optical glass, and other important problems.

Urgent Investigations During the War.—Our researches during the war should be concerned mainly with such problems as will enable us to become most effective in a military capacity, to utilize our resources of labor and materials most economically, to safeguard public health, and to develop such industries as will make us as independent as possible of all other nations with regard to the needs in our industries and homes, while releasing all materials needed for war activities.

We must develop metals of greater strength and of lower specific gravity for airplane parts and for other uses. Research will also enable us to produce metals which will have great strength under high temperatures and will be more suitable for gun linings than those used at present.

We must have larger quantities of fixed nitrogen and of potash

for use in national defense, for the manufacture of fertilizers, for the production of many highly colored dyes, and for other necessary uses.

The National Defense Act³ of June, 1916, empowers the President to make an investigation "to determine the best, cheapest, and most available means for the production of nitrates and other products for munitions of war and useful in the manufacture of fertilizers and other useful products by water power or any other power as in his judgment is the best and cheapest to use" and authorizes him to construct and operate such a plant or plants, appropriating the sum of \$20,000,000 to carry out the purposes of the act.

Nitrogen fixation depends upon an abundance of power, and this can be secured either by the greater development of our water powers or by the utilization of waste and low-grade power. Greater encouragement should be given to develop our practical water sites, and every effort should be made by all manufacturers of power to conserve our fuel supply, by more economical utilization of fuel of all grades and by the use of so-called waste fuels. This means greater attention to power-plant economy and investigations to increase our available fuel supply by the utilization of culm, breeze, and other low-grade fuels in properly designed furnaces.

More attention should also be paid to increasing the production of by-product coke and to restricting the production of beehive coke, as good coke can be less wastefully produced with the by-product ovens that are operated mainly for gas production. The gas can be utilized in the industries and in the homes. Dyes and drugs can also be manufactured from by-products obtained in the manufacture of coke and gas in smelting operations.

The absolute necessity for the fullest coöperation among the allied nations who are engaged in the war has emphasized more than ever before the advantages of universal use of the metric system of weights and measures. The last effort at the national adoption of the metric system in Great Britain was made some ten or twelve years ago and met with great opposition, but many who opposed it at that time now feel that the change is inevitable. The first expense of making the change will be heavy, but it is

³ H. R. 12766.

believed that in the long run the change will be profitable. A bill that has been drafted recently by the British Associated Chambers of Commerce and is now being critically considered by manufacturers of that country makes the metric system a legal standard for trading but does not prohibit the manufacture of apparatus or machinery in other than metric measures, so that it makes possible a gradual change which will not work hardship upon the industries. At the end of 1916 the American Metric Association was formed to further the adoption of the metric system, which has been legalized in the United States since 1866.

Technical Research After the War.—Any technical investigations, whether carried on now or before the war, that extend the boundaries of our knowledge will prove of great value to us during the period of reconstruction. Researches of value to our Army and industries at the present time will have a direct bearing upon our industrial activities after the war.

Properly organized research laboratories widely distributed through the industries and technical educational institutions of the various parts of the United States will do much in aiding us during the war and in preparing our country for the reconstruction period. Small appropriations at the present time by the Federal Government for technical research in the educational institutions of the various States will prepare research workers who will prove of value to our country in the future in connection with the solution of our local and national problems.

The foremost men of all countries recognize that an effective system of technical research cannot be started at the moment hostilities cease, and unless we are willing to start at once a definite program for the support and encouragement of technical research, we shall be unable to cope with the problems of reconstruction after the war.

To compete successfully with manufacturers of foreign countries, we shall have to foster technical and scientific investigations in order to insure the production of satisfactory and diversified manufactured products at a low cost for labor and materials.

Greater use will have to be made of the resources of nature in order to make up for the waste of man power now occurring, and this will involve all phases of research.

112 AMERICAN PROBLEMS OF RECONSTRUCTION

President Ira N. Hollis, of the Worcester Polytechnic Institute, considers that

"The difficulties of readjustment after the war may be lessened very much by careful study as to what engineering research should be and as to how coöperation can be carried out, including in the scheme of coöperation the Government agencies, the colleges, and the industrial establishments. . . . So far as men are available, I think all phases of research should be continued through the present time just as if the war did not exist. . . . In my opinion all kinds of engineering research will be of value after the war is ended, but there is one side of this which I hope to see very much promoted. Every industrial establishment employing a considerable number of men, say 500 or more, ought to have a school for apprentices and a laboratory for research as part of its necessary equipment."

Manufacturers should be willing to spend a definite percentage of their sales for technical research, in order to counteract competition. The industries will be concerned with such researches as will enable them to simplify and cheapen their manufacturing processes, to utilize low-grade and waste products, and to develop new and useful products.

A definite policy should be settled for the development of the raw materials in the various parts of the country.

New types of alloys of metals will have to be evolved, with properties unheard of at present, and different properties will be discovered by experimenting with known metals.

Hydroelectric power will have to be developed, particularly in the South, and this will result in greater activity along electrochemical and electro-metallurgical lines. Some attention will be given to the utilization of the low-head streams in the Middle West.

Electrolytic processes will have to be used to a greater extent, as will also the electric furnace in the iron and steel industries and for various reduction processes, such as the reduction of phosphate rock.

Greater attention will have to be given to fuel conservation. Technical research will aid in the development of furnaces for burning low-grade fuels under boilers as well as for the gasifica-

tion and carbonization of the fuels now wasted. Methods should be investigated for reducing the loss of coal through spontaneous combustion during storage.

It has been suggested⁴ that the volatile matter of bituminous coal would have greater economic value if converted into gas or liquid fuel than if burned under steam boilers. This suggestion is worthy of careful investigation, as heat in the form of coal gas is worth considerably more than the equivalent amount of heat in the form of coal. Carefully worked out processes for converting coal into liquid fuel will yield benzol and other liquid fuels of value in national defense, for use in internal-combustion engines, and for industrial purposes.

Coal-mining methods as well as oil-field and gas-field practices will have to be investigated, and the cost of producing fuel should be decreased, while wastes are reduced to a minimum.

Boilers for steam-power plants will have to be developed to carry higher pressures. Pressures of 350 pounds are now in use, and these will probably be increased. Steam prime movers will have to be designed for high temperatures and pressures, and greater attention will be given to refinements which will contribute to greater ultimate power-plant economy.

Researches in connection with the lumber industry will change the present wastes in the field and in the mill into useful by-products, such as turpentine, alcohol, paper, twine, and gas. Improved methods of preserving lumber should also receive attention.

In the petroleum industry new processes will have to be perfected for the manufacture of gasoline in greater quantities, and new uses will be found for the products which are now in less demand. More gasoline will have to be produced from natural gas by the absorption and compression processes and from petroleum by improved cracking processes. Greater use will also have to be made of other combustible oils, such as shale oil, lignite oil, and tar oil. The petroleum technologist and the mechanical engineer should coöperate in the design of carburetors suitable for low-grade petroleum fuels and for other combustible oils.

Investigations will need to be carried on with a mixture of benzol and alcohol, also with mixtures of benzol and low-grade petroleum fuels in internal-combustion engines.

⁴ Bureau of Mines Bulletin 135.

114 AMERICAN PROBLEMS OF RECONSTRUCTION

Improved methods will have to be perfected for the manufacture of illuminating gas.

The ceramic industries will have to be developed to a greater extent by more investigations of our clay industries. Greater attention should also be given to the conversion of our raw materials into useful products.

More accurate instruments of great simplicity should be perfected for the measurement of steam, gas, and other fluids.

The use of the metric system should be introduced more generally in industries interested in foreign industrial markets.

Definite properties as bases for standard specifications of materials should be fixed.

Mechanical power on the farm should be used more and more, as traction engines and trucks are perfected and adapted for the conditions on various farms and in different localities.

Our knowledge of the methods of communication and of transportation should be improved by researches on electric and steam locomotives, the motor truck, the automobile, the airplane, wire and wireless telegraphy and telephony. Greater attention should be given to permanent roads, in order that the locomotives may be supplemented by the auto-truck and the automobile.

The above suggestions include only a small portion of the investigations necessary in order to bring out our possibilities as an industrial Nation.

For effective research now and after the war better support must be given to the scientific bureaus and departments of the Government, as well as to educational institutions capable of carrying on research. Many problems will confront us, and only the greatest coöperation between the industries, the scientific departments of the Government, the technical educational institutions, and the other research agencies will enable us to handle most effectively such problems as will arise during the war as well as during the reconstruction period.

NOTE.—The contributor acknowledges the aid of Dr. W. R. Whitney and Mr. Calvin W. Rice.

TECHNICAL RESEARCH

(C) CHEMICAL INDUSTRIES

BY ALLEN ROGERS ¹

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Invention vs. Research.—Invention, discovery, and research are terms which to the lay mind appear to be synonymous. The sooner the public, and especially the manufacturers, get down to the true meaning of these terms, however, the more rapid will be our industrial advancement.

"Yankee invention" is a common expression that well indicates the trend of the American mind. Unfortunately we have not kept pace with our inventions in that we have not given adequate thought to the principles involved; neither have we, as a rule, applied ourselves to systematic research in order to bring these inventions to the highest degree of perfection. We have entirely lost sight of some of our most wonderful discoveries and have allowed other nations to appropriate them for their material betterment.

If we stop to reflect upon the great achievements often credited to other peoples, we will find that many such achievements consist simply in the development of ideas originating in another land. As a matter of fact, those nations which have made the greatest strides have done so by appropriating the inventions of other countries and, through systematic study and research, making them serve as tools and weapons in their own commercial, industrial, and military advancement. We have only to mention

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a few instances to prove the truth of this contention. For example, the submarine is an American invention, developed and perfected by Germany. The airplane is an American invention, brought to a high degree of efficiency by Italy, France, and Germany. The rapid-fire gun is an American invention, sold to and controlled by England, because we were too slow to appreciate its great significance in modern warfare. The coal tar color industry originated in England but was allowed to pass into German hands for lack of proper research organizations to explore its possibilities. The manufacture of optical glass, at one time carried on exclusively in England, was transferred to Germany because of the thorough study the Germans made of the methods of its production. The incandescent lamp is an American invention but was almost lost by this country through the German discovery of the tungsten filament; happily the day was saved through our perfection of the drawn-metal filament and the nitrogen-filled bulb.²

Germany has achieved her wonderful success in chemical industry because she has fostered the idea of investigation, has encouraged her workers to spare no pains in getting at the truth of all things scientific, and has made research a part of the national creed. By this method of stubborn perseverance she has enlarged her industries until at the outbreak of the European war Germany was considered the leader and authority in every chemical subject.

The Results of Our Neglect of Research.—Although we all realized that the world was dependent upon Germany for many articles of commerce, this dependence was not forcibly brought home to us until late in 1914, when we found ourselves cut off from many of the necessities of life as the result of the trade embargoes and the blockade of German ports. The first shortage noticed was that of dyestuffs; it was then that we began to realize how dependent we are upon the chemist. The dyestuff industry in itself is insignificant as compared to many others, but it may be considered the keystone of the arch in its relation

² The editor of this volume in 1907, as an undergraduate at the College of the City of New York, suggested the idea of the nitrogen-filled bulb to his instructor in physical chemistry, Dr. Leo F. Gutman, who did not encourage the pursuit of the idea. Such a bulb was put on the market about a decade later.

to many vital industries, such as the manufacture of textiles, leather, and lithographic inks directly and of clothing, shoes, and books ultimately. As a result of cutting off the importation of dyes business in many lines was affected and many people were thrown out of employment. An even greater calamity threatened, namely, that should we be unable to manufacture textile goods, it would be useless to raise so much cotton. Thus by the cutting off of a few pounds of dyes the industrial life of the Nation was put in jeopardy.

In view of our country's wonderful resources it is hardly conceivable that a small thing like this could create such consternation. It is even less conceivable when we consider that our annual importation of dyes was valued at only about \$12,000,000, or less than the candy sold in a year over the counters of the Woolworth five and ten cent stores. It was not the value of the dyestuffs, but it was the necessity for having them that caused the trouble. In fact, the value of the dye upon a piece of goods is almost negligible compared to the cost of the garment into which the goods is made. The dye used on the cloth for a lady's dress or a gentleman's suit may be worth about fifteen cents, yet without it the garment would be almost worthless.

As soon as the shortage of dyes unsettled our industries a great cry went up all over the land. Newspapers were full of articles on the dyestuff situation, and bills proposing some remedy were introduced into Congress. However, we are now making dyestuffs in sufficient quantity practically to meet our demands. Many of the domestic dyes are superior to those formerly imported, while all of them are well up to standard. The manufacture of dyes has been placed on a financial basis, and we can feel confident that the industry has come to stay.

Another vital shortage became evident, namely, in potash, for which also we had always depended upon Germany. In fact, this dependence had become accepted all over the world, because Germany has a natural advantage in her easily workable deposits. We needed potash, however, in our industries. Every conceivable source of potash was investigated, methods of manufacture were devised, and eventually we found ourselves supplied with sufficient quantities to meet our most urgent demands at least.

The above instances have been mentioned to show how dependent we thought we were upon Germany, but these are not

the only instances where the market had been controlled by German interests. The pharmaceutical and photographic chemicals were largely imported from Germany; chemical glassware and porcelain were "made in Germany" and not in America; and so we could go on with a surprisingly long list. But we have finally realized to what an extent the economic fabric of the Nation rests in the hands of the American chemist.

The Relation of Research to Industry.—Much has been written about scientific research and the necessity of devoting ourselves to the study of problems whose solution would increase our efficiency as an industrial nation. Few, however, have looked beyond the laboratory to see how the results of research could be adapted to factory practice. Some of the large corporations have provided for this need by equipping miniature plant units where processes are tried out on a semi-commercial scale before introducing them into the factory. This no doubt is an excellent practice and one to be commended highly, but it does not entirely solve the problem. What we most need at present is men who can take the results of the research chemist and intelligently interpret them in the language of the shop. To bring about this condition we shall be forced to consider more seriously the question of industrial education for the great army of workers who fill the minor though very responsible positions of foremen and superintendents.

When the time comes that we have men in our plants who can think along scientific lines and who can work in harmony with the technically trained man higher up, we shall be able to get the full benefit of the research chemist's knowledge, carry out the ideas of the chemical engineer, and profit by the findings of the industrial chemist. The directors of manufacturing concerns will then more fully realize the value of employing the type of men that our technical schools and universities are training.

That the above conditions exist was felt by the institution with which the writer is connected, and as a result in 1905 a course was established which has for its aim the training of young men for positions as foremen in chemical industries. In addition to certain fundamental subjects such as chemistry, physics, mathematics, drawing, and shop practice, a striking feature of this course is that a large part of the instruction consists in carrying

out manufacturing operations in a series of model plants. These model plants represent a chemical works, dye works, soap factory, paint factory, dry color and lithographic ink works, varnish works, and tannery. These plants are all built on a sufficiently large scale to be semi-commercial in their operation. In each one the students, working on a foremanship system, are instructed in the handling of materials on a large scale and are taught to operate the various machines employed in the industry in question. The equipment is so designed that practically every form of commercial apparatus is brought into use. Thus during the year each student becomes familiar with and learns to operate the vacuum pan, vacuum pump, filter press, centrifugal machine, steam-jacketed kettle, different types of mills and mixers, as well as special forms of machinery. It is this sort of training that will eventually make it possible to apply properly the facts which we have accumulated.

As a further step in the right direction, mention should be made of the research laboratories conducted by private interests. Many of the great manufacturing corporations of the country, having realized the importance of scientific investigation, have already established large research laboratories. These concerns can afford the outlay of capital necessary to equip and maintain such laboratories and are willing to wait for results. Such concerns as the United States Steel Corporation, General Electric Company, United States Rubber Company, Du Pont Company, National Aniline and Chemical Company, Barrett Company, General Chemical Company, and Eastman Kodak Company are now supporting laboratories, whose staffs are not only engaged in the problems of direct production but are devoting attention to the fundamental scientific theories underlying the industries in which they are interested.

There are a large number of small concerns that cannot afford to establish private laboratories. It is such concerns that need Government or other outside help. In certain branches of industry results have been secured by establishing coöperative laboratories to serve the whole industry. Coöperation of this sort has been developed by the National Cannery Association, the Paint Manufacturers Association of the United States, and the National Association of Tanners. In addition to this many manufacturers have taken advantage of the splendid opportunities

120 AMERICAN PROBLEMS OF RECONSTRUCTION

offered by the Mellon Institute and have established fellowships there for the study of problems in which they are especially interested.

Some Recent Progress.—The immense benefit to be derived from scientific research is well recognized the world over. It is only within the past few years, however, that this fact has been brought home to us as a Nation, but as a result of this awakening the desire for scientific knowledge has been stimulated to a marked degree. The first genuine attempt to develop a scheme of systematic scientific research for the advancement of industry was proposed by the American Association for the Advancement of Science in 1914, when a Committee of One Hundred was appointed to inquire into the proper steps to be taken. The work of this committee was later taken over by the National Research Council, which has expanded its field of endeavor to include many lines of industry. This Council is composed of thirty-five members, each one a chairman of a committee on some special branch of science. Each committee is composed of chairmen of special divisions in that particular field. The chairmen of these subcommittees reach out to the industries and thus get into touch with the problems of the day. Eventually this Council may act as a clearing house for systematic research work.

An awakening has also been felt by the national authorities, and we now find the various departments of the Government making special efforts to bring their activities into closer touch with the needs of the people. Thus the Bureau of Fisheries has done much and is actively engaged at present in making available certain fish products which heretofore were considered of no commercial importance. The Department of Agriculture, through its Bureau of Chemistry and other bureaus, and the Department of the Interior, through the Bureau of Mines, have successfully solved some of the most trying problems of the day.

That we are not alone in coming to the realization of the value of scientific research is shown by the fact that the British Government has appointed a Department of the Privy Council to take up this subject. France has planned for a national laboratory for the same purpose. Australia and Canada are likewise considering what steps should be taken for the organization and development of research work.

A National Research Laboratory.—Up to the present time our own Government has made no plans to establish a national research laboratory. The movement, however, is in the air, and it is to be hoped that in the near future some definite steps may be taken to found an institution for this purpose and thus place scientific research in America on a firm basis. Many suggestions have been offered and numerous articles written to show just how such a project should be undertaken.

In the opinion of many it would seem wise to establish a central research laboratory or bureau where specialists in various branches could be brought together under a single organization. This suggestion has some arguments in its favor, the chief of which is that a closer coöperation and exchange of ideas would thus be rendered possible. This advantage is one that cannot be overlooked. The great disadvantage, however, in such an arrangement would lie in placing one man in direct charge of all branches of research. This might work a hardship on certain important lines of investigation, because no man, however broad, is capable of seeing into and appreciating the problems in every branch of science. Furthermore, a single laboratory would be very apt to become narrow in its sphere of activity and would unquestionably devote more attention to certain favorite branches than it would to others. A central laboratory would not be in touch with local conditions, would not so fully appreciate the requirements of a given locality, and thus could not cater to its needs.

If such an enterprise should be undertaken it would be far wiser to distribute the laboratories among the different States in order that local problems could be studied first-hand, where the workers would be in sympathy with the requirements of the people they are trying to serve.

The expense of conducting separate laboratories would naturally be greater than if the work were carried out under one roof, but the objects to be attained, if successfully consummated, would far outweigh the added expenditure involved. The personal contact of the Director with the people most interested would unquestionably result in closer coöperation than could possibly be obtained by an occasional visit from a man working at a distance of perhaps two or three thousand miles. Further, when one lives in the atmosphere of his work he takes a far greater pride in

bringing his efforts to a successful conclusion, because the results of his investigation are to be of direct benefit, not so much to the Nation as a whole, but to the people in the home town. It may be said that a man should work just as hard and have as much interest in a problem the results of his labors on which are to profit the Nation at large. But the man in New Jersey would have no particular interest in working on lake water from Utah, whereas he would be intensely interested in the study of the grasses from the Jersey meadows. Thus, to get the best results, local interest plays a most important part. At the same time it goes without saying that whatever benefits a section of the country benefits the Nation as a whole.

Those opposed to this plan may say that certain States have no local industries requiring special development. The chances are that there will be several States desiring to conduct research along the same lines rather than that there will be any having no problems to solve. Should several localities have the same problem, a decided advantage would accrue from healthy competition, for local pride would stimulate the workers to give their best efforts, and the exchange of ideas under such conditions would be highly desirable.

An objection to the decentralization of research might be offered in that certain small but vital industries would not receive proper consideration. This phase of the enterprise could be very well handled by making provision for a central laboratory or home office at Washington, where problems of national importance might be studied. These problems might affect the key industries without which the others languish. Of these key or pivotal industries some of the most important are those concerned with optical glass, chemical glassware, chemical porcelain, fine chemicals, synthetic drugs, synthetic perfumes, and the rare earths. The problems dealing with these minor though very important subjects would be assigned to specialists working at the central bureau, whereas problems of a local character or having larger significance would be studied at the local stations.

The home of research has always been in the university. With the establishment of research laboratories of the type mentioned a further impetus would be given to this activity through the demand for properly trained men in special lines. A station located at or near a university would always have problems of scientific

interest the details of which would furnish excellent material for investigation by graduate students of the affiliated school. Not only could the university, through this coöperation, conduct lines of research which would give the desired training in systematic investigation, but the results obtained would be utilized to advantage and not sidetracked or pigeonholed, as is now a common fate of results of students' work. By thus bringing the problems of the station to the attention of the university a closer coöperation would be obtained, which would be to the advantage of all concerned.

To accomplish the aims here outlined we must cast all our efforts into the mold of our broader vision.

VII

SCIENTIFIC MANAGEMENT

BY FRANK B. GILBRETH¹

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AND

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Industrial Psychologist

FUNCTION OF SCIENTIFIC MANAGEMENT

The function of scientific management is not only to conserve and utilize materials and workers in the industrial field, in which it had its beginning, but also to furnish methods of conservation and of utilization applicable to all fields of activity. Based as it is upon a determination to submit all problems of management to measurement, in order to formulate scientific methods and to bring practice into line with the investigations, scientific management has evolved instruments of precision and methods of measurement that have resulted not only in making industry more efficient but in determining in the industries and in other fields the transferable units that will make industrial reconstruction of far-reaching economic and educational effects.

ITS CLAIM AS A RECONSTRUCTION AGENCY

Scientific management has to do primarily with methods. The determination of aims and ideals lies in the field of economics

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² B. Litt, University of California, 1900, M. Litt, 1902; Ph. D., Brown University, 1915, author of "Psychology of Management," and joint author with her husband of various books.

and ethics, but, since the success of scientific management depends upon the coöperation of all working under it, the aims have been and must continue to be constructive and educative and the ideals democratic. Therefore, scientific management as a method is uniquely able to cope with the temporary and permanent changes caused by the war, and to utilize present opportunities for the benefit of both capital and labor.

CHARACTERISTICS OF TEMPORARY CHANGES

The temporary changes caused by the war in the industries are significant in that they have affected a great number of industries and all classes of our people. Among them several may be noted as typical.

Appreciation of Importance of Waste Elimination.—First, an appreciation of the necessity of eliminating waste, including waste in materials, waste of the human element, and especially waste of time in unproductive motion. This country has for decades lagged far behind European countries in eliminating waste of materials. It took the shock of the war and the pressing need for conservation of materials of all sorts to demonstrate the importance of saving, of substituting, of utilizing, of supplementing, and of reclaiming. As to conservation of the human element, the standing of the United States among the nations at the beginning of the world conflict was debatable. It is, however, certain that throughout the subsequent years, and the last especially, there has come about a great national appreciation of the need for conserving the human element through prevention of accidents, through sanitary working conditions, through welfare and service work, through the elimination of fatigue, and through economy of motion as methods of compensating for war losses. By fatigue elimination we understand not only eradication of all avoidable fatigue detected by study but also the reduction of necessary fatigue by means of sufficient and properly utilized rest intervals. Time study and motion study in scientific management have been useful in showing that in modern practice, as well as in the theories of the philosophers, time and space are worthy of serious consideration. As a nation we shall need to think more and more in terms of economy of time,

motion, and energy. This means a scientific conservation and utilization of the human element.

New Supply of Workers.—A second change caused by the war that affects scientific management is the new supply of workers available. These enter the industries for two reasons, both because of a need within the industries for an added supply and because of a driving force without, leading patriots to volunteer their services. The new supply of workers come into the industries either as those who have worked before and who are changing their activity or as those who have never before taken part in the industrial life of the community. In either case, there are problems of education and adjustment to be solved. These "new" workers comprise civilian men and women either with no industrial experience or with skill in some unrelated vocation, as well as crippled soldiers who come back into the industries needing to be readjusted to their work in various ways.

Growth in Willingness to Coöperate.—A third change to be noted is the growing willingness of all, within and without the industries, to coöperate. This results in a temporary "plasticity" of working relations and conditions that has its dangers as well as its advantages.

Appreciation of Need for Education.—A fourth change introduced by the war is in the attitude toward education. There is a widespread recognition of the need for some new and more efficient form of teaching, whereby the one best way may be determined accurately and may be transferred by the skilled teacher to the learner with the least possible expenditure of time and energy.

UTILIZATION OF CHANGES

We turn now to the utilization of these temporary changes as readjustment forces. Scientific management includes not only a method of saving and of utilizing but also a method which automatically presents records of the results obtained that demonstrate the value of scientific management both on the human and on the material side. The demonstration of an adequate method of handling a new supply of workers will not only in-

crease industrial production during the war period but will serve as an example of what may be done in assimilating a new industrial force. Having done this work in war time to the general satisfaction, scientific management can continue to be serviceable during the reconstruction period and thereafter.

It will by similar methods assist in readjusting returned soldiers, both crippled and sound, to the industries, and in providing more profitable and satisfying opportunities for those whom the returned will naturally displace. The functionalizing of work and specialization of workers, together with the greatly increased amount of production necessitated by the war, will after the war present a serious industrial problem. Scientific management will, however, aid in its satisfactory solution.

Scientific management is a factor—indeed, a cause of coöperation—between capital and labor. Any management claiming to be scientific which does not insist upon and result in coöperation does not deserve the name and has no element of permanence. The new form of teaching required by war conditions can become a reconstructive agency only if its psychological value is recognized.

The one best way of doing various kinds of war work is being determined and taught. It is rapidly making specialists of untrained workers and is supplementing inadequate training. It is facilitating satisfactory placement. It is resulting in increased product and satisfied workers and is meeting war needs in the army and in industry. The types of activity may change during the reconstruction period. However, the methods of attaining efficiency remain the same. The need is that they be recognized, approved, and installed.

The above-mentioned changes resulting from the war are temporary. The problem is to utilize the benefits therefrom permanently.

PERMANENT CHANGES CAUSED BY WAR

Added to these temporary changes are certain permanent ones which are taking place abroad as well as in this country. We note among these an increase of standardized production on a large scale by means of automatic machinery. This increase is taking place in England, in France, and in Germany and will

mean competition for this country after the war, no matter what trade relations may prevail. We find also a tremendous increase in the use of unskilled labor, including women and partially incapacitated soldiers. Though much of the present unskilled labor may in time become skilled (especially should the methods of scientific management be adopted), there has come about a permanent change of attitude toward the possible labor market. Never again will these countries feel that it is impossible in a short period of time to utilize unskilled labor, even in lines of work where skill has hitherto been believed indispensable.

Another permanent change is the widespread adoption of scientific management, not only in this country but in England, France, and Germany and to some extent in Italy and Russia as well. Before the war the adoption of scientific management in these European countries was a matter of experiment. It was regarded as a distinctly American process which had to fight its way. Because of the great need, however, scientific management has been accepted as an industrial necessity, placing these countries on a new basis whereby they will compete with us during the reconstruction period and thereafter. Besides, the increased cost of living all over the world will make it absolutely essential to adopt scientific management, so as to reduce unit costs and retain low selling prices. Having proved itself of economic value in Europe, it surely will be maintained. The war has caused a broadening of education along general as well as industrial lines. Many untrained workers have received a specialized education. Women have been given an opportunity to prove their industrial worth and adaptability. The efficiency of intensive education has been demonstrated. The need for teaching crippled soldiers and the resulting courses in occupational therapy, mental hygiene, and vocational training—all of these mean a permanent increase and appreciation of the needs and value of education.

A POLICY NEEDED

In order to meet these permanent changes, this country must encourage standardization processes of both machine and hand; insure adequate testing, placing, training, promotion, and utilization of labor; foster individual, social, and governmental ap-

130 AMERICAN PROBLEMS OF RECONSTRUCTION

proval of scientific management by the abolition of all obstructing agencies. Statesmen must recognize the efficacy of scientific management as a remedy for the increased cost of living, since, by the admission of its opponents, it increases production and wages while at the same time lowering cost.

SCIENTIFIC MANAGEMENT AS A RECONSTRUCTIVE AGENCY

There is at the present time and will be also after the war a great need for more production, for a larger amount of things grown and manufactured. No one has disputed the power of scientific management as a producing agency. We need, second, more skilled workers, both now and after the war. No one can dispute the possibilities of scientific management in training specialists, to make any man who has not stopped learning a skilled worker. Third, we need more opportunities for cripples, and, after all, cripples are only specialists of one kind or another. It is not always appreciated that the crippled-soldier problem is simplified by the fact that the cripple has a fewer number of variables, at least from the physical standpoint, than the average man, and that his placement, if it is adequate from the start, is more apt to be permanently satisfactory for this reason. Scientific management enables us to give more opportunities to cripples, since the work is functionalized, since the workers are specialists, and since the transference of skill, from the man who has it to the man who has it not, is amply provided for. Again, we need more and cheaper products if we are to compete in the world's markets. In fact, the whole world must augment production. There is, again, no argument as to the possibilities of having cheaper prices under scientific management. Accompanying this is a fifth need, and that is to pay adequate wages. Those who are not students of economics are apt to say that increased production means permanent lowering of wages. It means lowering of ultimate cost to the consumer but not permanent lower wages to the producer, for facts prove, in England and in this country, that increased production means more work, more opportunities for employment, and better wages.

Necessity of Using It at Once.—There is a need to utilize this period of plasticity. During the stress and strain of the war

both employers and employees are willing to concede things that have at other times been denied. Every one wants to help. The unions are less strict in their demands. The employers are more generous. Every one who has ability is willing to teach. A surprising number of cripples who have made good have offered their services as teachers, demonstrators, and object lessons to the war cripples. Industry is thus plastic. Moreover, many of the returned cripples have a far broader outlook than they had before they were mutilated. They have continued learning. They are apt pupils. Transference of skill to them will be easy. This is the time when improvements should be made. Besides, this is an especially auspicious time to see that the knowledge becomes transferred from the man who has it to the man who has it not, that the information is not regarded as a trade secret of an autocratic few but as public and available to all. There is talk of scientific management confining craft knowledge to the hands of the few. Quite the contrary is the case. The craft knowledge now in the heads and hands of the local few is to be gathered in and supplemented by such knowledge from all corners of the earth solely that it may be studied, rearranged, and then handed out in its best form to every one.

"The One Best Way" as a Constructive Force.—This is the opportune time for the introduction of a new type of education, to consist of teaching the one best way,³ and that only. There has been much waste, during the past, from teaching several wrong methods simultaneously and expecting a more or less well informed worker to choose for himself which is the best. There has even been the suggestion made that the experienced workers shall not do the thing the same way every time but vary their method "to avoid monotony." Now scientific investigations prove that monotony is *not* the result of doing the thing the same way every time but of failing to utilize habits and thus forcing the conscious will to follow a series of uninteresting repetitive activities.⁴ Few are capable of making correct decisions between more or less different methods, even though they have the analyzed laboratory data at their command. Even an

³"The Place of the Educator in the New Education." Presented before the American Association for the Advancement of Science, Section L, December, 1917.

⁴"Applied Motion Study," pp. 174, 175, 178, 179 and 208.

132 AMERICAN PROBLEMS OF RECONSTRUCTION

expert in an activity may be unable to describe why he does the thing as he does it. All of us are wearied by the necessity for making unnecessary repetitive decisions. The new type of education, teaching the one best way until the learner has perfected this to the extent that it becomes a habit, insures that an activity will be performed habitually in the best fashion possible, and that there will be no delay due to habit interference and no weariness due to unnecessary decisions. It allows improvement from the highest state of advancement of the past. This new type of education is applicable to all, not only to the "one in ten" to whom, according to labor leaders, advancement is limited, but to the "ten in ten"—to every worker of the organization.

A PROBLEM OF EDUCATION

In its final analysis the entire after-war problem resolves itself into one of education. Only by means of education can individuals in this country become convinced of the serious conditions that await us and of the efficacy of scientific management in solving the reconstruction problems. Only through education can both capital and labor be convinced of the need of internal coöperation in order to meet increasing external competition. Only through education can the economists convince the people of the country that profitable manufacture means prosperity for the individual; that increased production means ultimately lower cost to the individual and an increase in industrial opportunities. Education will spread the doctrine that elimination of waste both in materials and in the human element means increased prosperity; that fatigue is the prime human extravagance; that motion economy means conservation and utilization. We need specific education in scientific management for our managers and superintendents in the schools of commerce, in the engineering professions, and in the industries; for shop foremen in extension night classes and for apprentices in continuation classes by day.

SCIENTIFIC MANAGEMENT AS AN AGENT OF DEMOCRACY

Finally, if this country is to stand, as President Wilson has declared in such masterly fashion, for democracy—that is, for

political and social equality—it is necessary that we introduce scientific management in order that all men have equal opportunities. The great opportunity that must be open to all is the opportunity for education. Many likenesses between men arise because of likenesses in educational opportunities. Differences in men come largely from differences in education. One man has a greater power of achievement than another largely because he or his ancestors have had greater opportunities. Now scientific management stands for equal industrial opportunities for all. It stands for adequate selection and placement of workers. It creates adequate opportunities for promotion for which it prepares the worker. Above all it stands for efficient learning and teaching. It should become known and available to our workers in the industries. It should be at the service of industrial as well as war cripples. It is an important factor in reconstruction. It will help us not only to win the war but to “win the peace.”

Its Place in the World Development.—We also claim that it should be and will be at the disposal of the entire world. In the ultimate analysis, while we have an important problem in after-the-war competition, this is not so important as the after-the-war coöperation. It will be necessary for all nations to coöperate to put living on a scientific basis, in order that all may advance and compete on the highest possible planes. To this end it is necessary that we emphasize our common needs and our common duties. All nations alike have the duties of elimination, of conservation, and of utilization; all are faced with the problem of the crippled soldier; all must eliminate unnecessary fatigue; all must accomplish their aims with motion economy; all must consider necessary savings in time and energy. It is for this great people of ours to undertake scientific management not only for our own advancement but for the advancement of the world. Although we are in the war and expecting to take a leading part in its activities, there remain ample power and force in this country to undertake this reconstruction work even in this time of struggle. It is a wonderful thing to be willing to die for one's ideals. It is not less wonderful to be willing to live and sacrifice for them. Especially do we owe it as a duty to our young men who are offering their strength, their youth, and their very

lives upon the battlefield that we at home shall prepare a better work-place, a better living place for them to return to than they have ever known before. We owe it to them to develop the highest type of training both in war-time and in peace-time activities. We owe it to them to put our industries on a scientific basis, to create places to utilize their activities in a finer way than in the past.

Its Call to the Worker.—It is, therefore, for those who are not acquainted with the principles of scientific management to become acquainted with them. It is for those who have criticised destructively to commence to criticise constructively. It is for all, disregarding particular features that do not appeal to them, to grasp the underlying principles of scientific management and to apply them each one in his own particular field. Foremost in the activity should be the workers of the country. Upon them come the burdens of war; upon them fall the burdens of peace. Now they have at hand a great chance to lighten these burdens, to make their necessary activities interesting and profitable, and to utilize this new force to advance the cause of the brotherhood of man. Scientific management is essentially democratic. It is the part of a democracy, therefore, to lead in its adoption and to practice its doctrine for the enlightenment of the world.

VIII

READJUSTMENT OF INDUSTRIES

(A) STEEL

BY CHARLES M. SCHWAB¹

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Introduction.—There is just one task at hand. That is to win the war. It is our immediate duty and our pressing need. To it every ounce of needed energy should be directed. From it no power should be diverted. The war has Priority "A" demand on all matter, on all energy, and on all thought.

But after this urgent demand is met there is no more necessary work than to plan for after the war. This is a work worthy of an intelligent people. It is a task for those of our men and women whose services have not been commandeered for the war. Each industry has its own peculiar after-war problem. No one man can know all the phases. Although individual manufacturers may be giving serious thought to the problems at their own plants or to small sections of their various industries, there might well be a committee of each industry to study what are the temporary effects of the war and what permanent changes it has brought about, as well as to devise methods to make easy the transition to peace and to plan for an after-war policy in each industry.

Bethlehem's problem is in a way an epitome of the national problem. This corporation is one of the largest munitions makers in the United States and therefore supremely faces the need for a change in the nature of its production. Its immediate transition problem is typical of the problem confronting all the war in-

¹ Entered service of Carnegie Steel Company and became its president from 1897 to 1901; president of United States Steel Corporation, 1901-3; director in various industrial companies.

136 AMERICAN PROBLEMS OF RECONSTRUCTION

dustries. In addition, Bethlehem is one of the largest shipbuilders in the United States, engaged in a typical peace industry which will be busy for years after the war. Its post bellum policy will reflect a national policy. While Bethlehem's problems and plans in their general aspect may be of national interest, they are typical, and I shall deal with the steel industry of the country as a whole.

No Abnormal Expansion of Capacity.—The one outstanding fact in the consideration of the after-war problem in the steel industry is that our production has not grown extraordinarily. The country produced 31,000,000 tons of pig iron in 1913 and 39,000,000 tons in 1917, an increase of 8,000,000 tons, or about 26 per cent. Both these years show record production. There have been more striking increases in other four-year periods, as shown herewith:

Year	Production	Increase in 4-Year Period
1899.....	13,600,000 tons	
1903.....	18,000,000 tons	4,400,000 tons=33%
1907.....	26,000,000 tons	8,000,000 tons=45%

Even in a single year there have been as great or greater increases in pig-iron production, although the fluctuation may have been due to depression or boom and may not have been between two record years. A table illustrating the increases follows:

Year	Production	Increase in 1 Year
1904.....	16,000,000 tons	
1905.....	23,000,000 tons	7,000,000 tons=44%
1908.....	16,000,000 tons	
1909.....	26,000,000 tons	10,000,000 tons=62%
1911.....	24,000,000 tons	
1912.....	30,000,000 tons	6,000,000 tons=25%
1914.....	23,000,000 tons	
1915.....	30,000,000 tons	7,000,000 tons=31%

The growth in the four-year period from 1913 to 1917 is less than the relative growth in many other four-year periods. It

is even less than the upward fluctuation in the annual production from year to year in many cases. We may therefore conclude that the war did not overstimulate steel production. The present capacity might have been expected after a normal four-year period beginning with 1913.

Demand for Steel Deferred.—One of the striking facts in the present situation is that much of the normal demand for steel has been deferred as a result of the war. It has been temporarily displaced by more urgent war needs. An analysis of the ultimate destination of the sales of any large steel company or of the production of the industry as a whole for the years 1917 and 1913 shows how the output for peace purposes has been curtailed in many lines and even entirely eliminated in some.

For instance, the building industry has been greatly restricted, cutting down the normal demand for structural shapes and other steel products. Early in the war this had been a natural result of rising prices. The value of building permits in twenty principal cities was only \$397,000,000 in 1917, as against \$622,000,000 in 1916, a decrease of 36 per cent. Compared to a normal peace year like 1912, for instance, with its \$554,000,000, the year 1917 showed a restriction amounting to 28 per cent. More recent figures show a tremendous reduction, running as high as 60 per cent. The value of building permits in these twenty cities for the month of March was in 1918, \$19,000,000; in 1916, \$55,000,000; and in 1914, \$55,000,000.

In addition to this natural decline of building construction, an official order was issued recently by the Secretary of the Treasury that no new public buildings not needed for war purposes be started while the war is in progress. Although the Government construction program, according to the estimates made by the Treasury Department, will require \$3,500,000,000 for fortifications, warehouses, cantonments, and industrial housing facilities, yet there is a latent normal demand which has been suppressed. Now, whether new structures are erected or not, the usual processes of increase of population, depreciation of buildings, fire and accident losses are still operative and are piling up a cumulative demand which will become effective at the end of the war. Of course, price will be a determining factor in the after-war demand for steel. The lower the price of building

materials the greater will be the activity in building construction. The three million tons of structural shapes produced, say, in 1913, multiplied by the number of war years during which normal construction has been reduced, will give us an indication of the accumulated demand for steel. Some estimate it at a billion dollars a year, in all lines. This deferred need will operate like a shock absorber when the war demands cease.

What is true of building holds also for other industries that consume steel. The automobile industry has been held back both by the increased cost of materials and by the difficulty of obtaining them at any price. The National Automobile Chamber of Commerce voted a 30 per cent decrease in the production for 1918, and the War Industries Board ordered a substantial reduction in output. Further enforced curtailment is expected. The automobile has come to be a useful part of the modern method of carrying on business and of living, especially in small communities. The deferred demand for automobiles, like that for building materials, will become effective when the war is over.

In much the same way the normal needs of the railroads have been inadequately met. The orders for equipment as well as for track and structures prior to the war had been curtailed owing to the poor credit of the roads, as a result of their inability to raise rates. True enough, large orders have been given recently by the Government. However, one feeding will not restore a starved man. Recent orders will hardly fill the total need arising from enforced skimping of railroad maintenance. In fact, they will probably only relieve the acute deficiency. There is a large unfilled demand for railroad steel which will act as a buffer in warding off any depression incident to the transition to peace. The Government will be able to aid in minimizing the difficulties in industry or the depression in the labor market when war orders cease, if it will give orders for railroad equipment and for rails for development work in those territories in which new building was retarded for lack of credit. The foreign governments that own their railroads have in this way lessened or even prevented business depression and at the same time have wisely made their necessary purchases at the low prices of a slack period. Under our old system of railroad management the reverse was true. The railroads had to stay out of the equipment market during a depression, for lack of funds. When boom times came and the

deficiency in rolling stock became acute, orders were placed in a congested market and at high prices. If we benefit by lessons of the past, a wise policy will enable us to pass through the transition with comparatively little disturbance to labor and industry. Of course, during the transition to peace there will be a "dead point" in the cycle of business. We shall reverse the direction of industrial activity. The nature of the output will be different. The conditions of work will be radically altered. Some dislocation can not be avoided. Its extent depends upon the wisdom of our leaders and the counsel of men of affairs.

100 Per Cent on Government Work.—At a meeting in New York on April 26 the steel interests of the country pledged themselves, at the request of the War Industries Board, to subordinate all other lines of business to the call of the United States Government, either for its own needs or for those of its Allies. According to recent reports of the *Iron Age* 100 per cent of the output is in many lines of production being applied to Government work.

In addition, stocks in jobbers' hands are very slight—in fact, are at a lower level than at any other time since the war began. This is naturally so. The incentive to buy, store, and sell which regulates a free and fluctuating market was missing under the régime of even and fixed prices. Further, jobbers will have difficulty in future in obtaining any supplies unless they have a priority certificate, as evidence of the essential nature of the industry to which the goods are destined. This dual condition of the utilization of 100 per cent of the output on Government work and of the lack of accumulated stocks gives a hopeful indication of the prosperity of the steel industry after the war, when the normal demand, accumulated though deferred for a long period, comes into play to absorb the supply which the Government will no longer need.

The Conversion of Plants.—To understand the after-war situation fully, one must realize that even if at present the Government takes the entire output of steel mills, most of the plants will not necessarily be changed. For instance, the production of semi-finished and finished products has gone on during the war as it did during peace. There is no change in the plants produc-

ing billets and bars, ingots and castings, rods, sheets and plates, hoops, bands and ties, nails, pipe, rails, rivets, skelp, structural shapes, tin-plate, and wire. It is because modern war is a conflict of nations rather than of armies that our war production is devoted not alone to ammunition for the army, but to the usual products needed by a belligerent nation, straining itself during the emergency.

Many of the plants making even the highly finished products may also be used after the war. In some plants it may be necessary to scrap specialized machinery designed for the production of munitions. But even in these plants the buildings may be used, as well as standard staple machines like lathes, planers, milling machines, and presses.

New Uses for Steel After the War.—In addition to the exercise of a deferred demand which will absorb the supply of steel in many lines, there will be new uses both temporary and permanent for American steel. Among the temporary demands will be the rehabilitation needs of Europe. These were estimated to exceed \$6,000,000,000 at the end of 1916. The National Foreign Trade Council made this estimate based upon the needs of Belgium and northern France for machinery, tools, raw materials, and building. The figures seem to have been carefully determined. Other later estimates of rehabilitation needs exceed \$10,000,000,000. True, it will not all be in steel that the work will be done, but in reconstructing buildings, factories, homes and schools, bridges, railroads, and machinery steel will be a not insignificant factor.

In this field, however, we shall not be the only sellers. England, France itself, and perhaps Germany will offer steel for the purpose of rehabilitation. The extent of our participation in the reconstruction work will depend upon our willingness to extend credit to the devastated countries, upon skillful and sympathetic salesmanship, upon the degree of coöperation with customers, and, last and most important, upon the element of price. In war time demand is pressing. The primary need is goods. Price is a secondary consideration. In times of peace, however, the satisfaction of demand can wait on price. There is lacking the compelling influence of war that insists on delivery regardless of

cost. It is these facts that American steel interests will need to bear in mind in sizing up the after-war situation in their industry.

The permanent new uses of American steel after the war will be in the shipbuilding industry. The total world's shipping before the war was about 50,000,000 tons. As a result of the destruction of both Allied and other vessels, this has been reduced to about 40,000,000 tons, to say nothing of the obsolescence of German and Austrian ships interned or blockaded in neutral or German ports. The annual increment of new shipping before the war was about 2,500,000 tons. American shipping in 1913 amounted to 7,900,000 tons, of which 6,900,000 tons was engaged in coastwise trade and only 1,000,000 tons in trans-oceanic trade. If after the war we have a foreign trading fleet of between 5,000,000 and 10,000,000 tons, and if we shall need to replace say 5 to 10 per cent of our tonnage annually, this will create a new and a permanent demand of considerable magnitude for ship plates and other steel supplies. In addition, we may have the opportunity to build ships or to sell plates to some of the northern European countries or to the South American countries whose merchant fleets are growing and who had orders with us before the requisitioning order affecting foreign ships went into effect.

Export Trade in Steel.—Our steel situation after the war is vitally dependent upon the extent of our exports. Before the war England, with a much smaller production, exported several times as much as we did in tons and many times more in percentage of total production. The same holds true for Germany, which exported about twelve times as much as we did relative to total production.

However, many circumstances have beneficently conspired to change our position. To begin with, the cost of production in Europe has been rising continuously toward the American level. Wages are high there to-day. When the European workman raises his standard of living to the level enjoyed by the American, it will go a long way toward removing the difficulty the American producer encounters in entering foreign markets. The war seems to have brought about this condition. Further, the export bounty, dumping, and other dubious German practices, which we condemned and eliminated with the evil practices of trusts in our domestic affairs, will no longer be tolerated in

international affairs. Germany will no longer be permitted to undersell her competitors by the use of questionable methods. Then, again, the Webb Export Law, recently passed, is of utmost importance. It is one of the wise provisions which will confer on the small producer the same advantages that the big companies enjoy. The union of small exporters will be able to extend their foreign trade far beyond the power of the unaided individual.

Another factor is the renascence of the American merchant marine. The amazing development of German commerce was due in no small measure to the growth of its ocean transportation. The supremacy of England, the prestige of France, the importance of Holland, in international commerce, arise from their control of ocean transportation. We have at last taken measures to procure an adequate merchant fleet. The American exporter of 1920, we hope, will enjoy advantages that he did not possess in 1910. And finally, our financial facilities for exporting have improved. Thanks to the founding of the Federal reserve system and to the creation of foreign trade acceptances or commercial bills of exchange, our exporters can sell their goods abroad on credit and discount their paper at the banks. If we can develop a large discount market, such as European countries possess, our financial facilities for handling our exports will be completed. Let us not forget that it was the long-term credits extended by Germans and rediscounted by them in the English banks that explain Germany's rapid development in commerce and industry, although the English exporter did not receive the facilities which the German did in England after his local German bank indorsed his drafts on his foreign customer. We have developed these instruments of foreign trade—legal permission to form export combinations, a merchant fleet, and adequate banking facilities. We have the steel. Its quantity is ample. Its quality is unexcelled. Our foreign trade should be invigorated. If it is, we shall have no difficulty in replacing during peace times some of the huge quantity of war exports now going to the belligerent powers.

Research.—No survey of the after-war condition of the steel industry would be complete without a reference to the place of technical research in it. It is with satisfaction that I refer to the splendid work of the late Frederick W. Taylor, done in the

Bethlehem steel plant, in the development of high-speed steel. Indeed, we have made progress in various other fields, as in the ferro-alloys, but all the nations are feverishly working under the stress of war, and we must not relax our efforts.

Technical research for us means not only the improvement of quality and the development of new processes, of new uses, and of new alloys. It means this in all countries. But for us particularly it should mean the lowering of the cost of production. I recall seeing one of the English journals² that referred to the advantages which the British steel industry enjoyed because its coal, its iron ore, and its seaports are within a small radius. On the other hand, we haul our ore one thousand miles to our furnaces and then ship our finished products another half thousand miles to the seaboard. Nature may have been bountiful in conferring her gifts upon us. But in scattering them she is calling forth supremely the ingenuity of the American to overcome the handicap of distance.

To compete abroad we must have lower costs. These lower costs must be attained by means of higher wages. To insure the continuation of high wages we must turn to scientific management and coöperation with labor to increase output. Our lower costs further must be attained in spite of higher transportation costs. We cannot rely on preferential railroad rates for steel produced for export purposes. We must look to chemical and engineering research to effect economies which will compensate for the separation of our ore and of our coal. We shall need to rely on our scientists and on their research institutions more than ever before.

The New Outlook.—In conclusion I cannot refrain from saying that we shall need a new and a national outlook on our industrial life. The lesson of the war is the value of coöperation. We have seen its results in the gigantic, successful industrial efforts put forth in the last year. The warning of the war is the danger of suspicion and of suppressed antagonism. What we want is a frank and a helpful attitude. The loss of production through strikes and lockouts does harm to the Nation as well as to the parties involved. Similarly, restrictive laws against industry

² *Engineering*, London.

144 AMERICAN PROBLEMS OF RECONSTRUCTION

benefit the Nation not at all. Every industry adds to the common welfare. Proper understanding, sympathy in its widest sense, and coöperation upon the part of all the elements in the community are alike the key to national as well as to international peace and progress.

READJUSTMENT OF INDUSTRIES

(B) CHEMICALS

By BERNHARD C. HESSE¹

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The apparently permanent changes brought on by the war in chemical industries of the United States may be broadly grouped as follows:

1. Awakened mental attitude of the public.
2. Increased familiarity of the people in general with the bearing of chemical industries upon our national economic life.
3. Public determination to become independent of other countries in this sphere.
4. Better understanding of the financial aspect of chemical enterprises.
5. Increased diversification of our output.
6. Increase in experienced labor and superintendence in chemical industries.
7. Actual additions to manufacturing capacity.

Prior to August, 1914, the attitude of the public mind toward our domestic chemical endeavor could hardly be termed solicitous or even interested; "indifferent" might be a better designation. Within the first two months of the war the country generally awoke to a realization of the conditions that had existed for at least a generation, namely, that for many of the chemicals needful in our domestic industries, themselves not strictly chemical,

¹B. S., 1893, University of Michigan; Ph. D., 1896, University of Chicago; research chemist with the Badische Anilin und Soda Fabrik, Germany, 1896-1905; consulting chemist, 1906—; devised a system of control of coal tar dyes in food coloring in connection with the Pure Food Act; initiated the production of liquid chlorine in the United States; author of various articles on coal tar colors.

we were wholly or in part dependent upon foreign sources of supply. In the case of such substances as ammonia salts, acetic anhydride, barium chloride, barium nitrate, bleaching powder, sodium cyanide, yellow prussiate, sodium nitrate, sodium hydrosulphite, oxalic acid, and zinc dust, we had domestic sources of supply of varying extent and capable of expansion. But in the case of other chemicals, such as carbolic, salicylic, phthalic, tartaric, and citric acids, magnesium chloride, and manganese or potash products, we were wholly at the mercy of foreign countries for either the raw material or the finished article. In the case of certain metals, such as magnesium and its alloys, as well as of synthetic dyes, drugs, flavors, and photographic developers, we were subject to external sources of supply. Our dependence upon foreign countries for many vegetable and animal raw or finished materials was also forcibly brought home.

THE ATTITUDE OF THE PUBLIC

The public was not at all slow in expressing in terms of great disapproval its opinion of what it considered to be the backwardness of the American chemist and indignantly, even hysterically, demanding the immediate removal of conditions which it had itself not only permitted but actually encouraged to grow up during more than a generation. Soon public opinion calmed down and a period of self-examination intervened. As a result we came to realize that in the past we had paid insufficient attention to the diversification of our industries and particularly to the fortification of those that have since come to be known as "key industries," such as the manufacture of chemicals.

NATIONAL TEAM WORK

Convinced by the logic of events of the fallacy of viewing our industries piecemeal or locally, the public has awakened to the fact that there must be national team work among all our industries, that they must constitute a national unit of the highest efficiency in output, and that they must embrace a wide variety of products, to the end that our whole industrial fabric shall be self-contained to the highest degree attainable. That the public maintains this new viewpoint is, I am firmly convinced, the fun-

damental condition upon which alone a complete and diversified domestic chemical industry can be developed or perpetuated. As soon as the public loses that view, retrogression in the industry may be expected.

THE EFFECT OF THIS NEW PUBLIC VIEWPOINT

One of the principal factors in the ultimate development of this new public viewpoint was the campaign of public education vigorously carried on in our daily press and in our periodicals. As it progressed, it lost much of its previous bizarre and fanciful character and resulted in a competent treatment of the subject not only in periodicals but in books. The public has had an opportunity of convincing itself from its various unsatisfied needs that there is a close if not always obvious connection between chemical industry and the things that we wear, eat, and drink or that enter into a thousand and one articles of daily use, such as our books, our houses, and our means of communication.

With this interdependence forcefully brought home, public determination to be self-sustaining has grown and made itself heard in terms not to be ignored. All this gives good ground for the hope that this change will be permanent.

OUR INCREASED CHEMICAL INDUSTRY

Long before the public gave convincing expression of its change of heart, those engaged in domestic chemical enterprises, from one motive or another, took energetic steps to contribute to our national independence in this direction. As a result we now have more intense and diversified production in almost all departments of chemical endeavor, particularly in the direction of explosives, coke-oven materials, electrochemical products, potash, glass, ceramics, porcelains, manganese compounds, liquefied gases, acids, salts, alkalies, leather and leather substitutes, synthetic remedies, drugs and dyes, barium products, nitric acid and ammonia, metals and metal alloys, than ever before. This has necessarily brought with it added manufacturing facilities and experienced labor and superintendence.

From July, 1914, to the end of January, 1918, the capitalization of new drug, dye, and chemical enterprises in the United States

148 AMERICAN PROBLEMS OF RECONSTRUCTION

exceeded \$338,000,000. This gives a measure of the increased national understanding of the financial aspect of the chemical industry. It is a matter of congratulation that in that huge total there has been relatively little of failure or of misrepresentation. In the five years ended June 30, 1914, domestic chemical enterprises grew relatively faster than our industrial enterprises as a whole. With the added impetus to the domestic chemical industry as a result of war conditions, the census figures ought to make a very impressive showing for the year 1919.

PERMANENT CHANGES RESULTING FROM THE WAR

Which of these changes, due to the war, will actually be permanent it is impossible to say. Whether the changed attitude of the public remains permanent or not, it would be too much to assume that we shall lose all that we have gained. Yet it is, perhaps, too much to hope that even under the best conditions we can hold it all. But if this altered view is maintained, there is every reason to believe that we shall retain the whole advance in many lines, though we may lose ground here and there. We may look for setbacks in the production of those chemicals in which our domestic raw materials are either more refractory or less plentiful than the foreign supplies, as in the case of barium and potash products, and in those branches in which we have not yet acquired the necessary manufacturing technique or "art," as in the production of glasses, ceramics, or porcelains. In the first two classes the handicap may be overcome through research. In the third class sufficient opportunity to acquire the lacking technique must be provided, either through private industrial effort or through public technical education.

OUR REAL OBJECT

Personally, I am decidedly optimistic as to the general status of our domestic chemical industry after the war. However, that does not mean that at that time we can sit down, fold our hands, and let things slip back into the former state. That will never do! On the assumption that the public attitude will be maintained in good faith, it is more than ever incumbent upon those of us who are engaged in chemical endeavor, industrial or otherwise, to prove

by our resourcefulness that we are worthy of the Nation's trust. That we will do so is only reasonable to expect. The recent history of the American chemical industry has proved how under prevailing conditions every opportunity was fully utilized. The task expected of us is not an essentially new one. The only new features in it are an expanded field of opportunity and a live and sympathetic public opinion.

TEMPORARY CONDITIONS RESULTING FROM THE WAR

The resulting temporary conditions were diverse. We were unable to obtain certain chemicals from former foreign sources. Some of them we could not make, because of lack of supplies of raw materials, domestic or foreign. The raw-material shortage itself was due either to insufficient supply for normal requirements or else its diversion to war uses by our Government or by others. As an illustration, take carbolic acid. Of its constituents we had been producing enough sulphuric acid, caustic soda, and benzol to make all the synthetic carbolic acid the country normally required. But we did not manufacture enough of them to make good the carbolic acid shortage, which was created by the closing of foreign sources of supply and by vastly increased demands for carbolic acid by the makers of picric acid, itself practically a new product of the domestic chemical industry. But that shortage was remedied. Then came the added difficulty of making enough nitric acid to convert this carbolic into picric acid. Next appeared the further problem of making enough nitric and sulphuric acids to make all the T.N.T. demanded, and this required operations on a vast scale. Finally came our own entrance into the war, to add to these strains.

To take another example—toluol. After toluol in excess of the Allied T.N.T. requirements was made available for benzoic acid, saccharine, and dyes we entered the war ourselves, and toluol had to be diverted to needs of our own Government. What is true of toluol, benzol, sulphuric acid, and caustic soda holds equally true of a very large number of other chemicals, so that after the war we should produce them in abundance and at costs as low as in any other country. Whether we shall be able to absorb these enormous outputs is a question which probably no man would undertake to answer. The chances are that for some

time we shall not be able so to absorb them. More than this I do not feel prepared to say.

For other substances, like potash, it is possible that substitutes satisfactory in war time may not be so in peace times. Yet those best in position to judge are confident that for many purposes potash has been permanently displaced. In the case of synthetic drugs, dyes, and developers, it is merely a question of time. The pressing needs must first be met. The less pressing will simply have to wait their turn. Eventually all necessary chemicals will be made here, and the substitutes we have been compelled to employ will be displaced by the genuine product of domestic manufacture.

No matter when the war ends, to-day or five years from to-day, we shall have to expect that the American market will offer foreign chemicals or domestic substitutes. But we shall have to turn our attention to the production of those still missing. We shall then have sufficient opportunity to "round out" our lines of manufacture.

READJUSTMENT AFTER THE WAR

The history of the American chemical industry shows that, in general, the more readily the basic chemicals become available the more rapidly is their domestic use extended. There are but few exceptions to this rule. The confident expectation prevails that before long the greater part of our production of chemicals in excess of our immediate requirements will have found profitable use in our industries. However, we must not blind ourselves to the fact that much hard work, both in planning and in execution, may be necessary to accomplish this end.

NATIONAL ECONOMIC POLICIES

To attempt now to lay down any hard and fast economic policy would be futile. However, to aim to secure independence in all commodities, to create a national industrial unit which by the initiative and resourcefulness of its scientists shall be self-sustaining—this is the best general policy to follow. To work out the details in each case or group is a subsequent need.

Our Federal Government is taking active steps to inform the chemists of this country as to the nature of the chemicals—raw,

intermediate, or finished products—which heretofore came to us from foreign sources, the exporting countries, and their relative participation in such supply. Federal laws have been enacted whose intent is to help the upbuilding of an independent chemical industry. The National Research Council is endeavoring to co-ordinate all our resources to the same end. Our educational institutions, our research staffs, and our chemical manufacturers and merchants must all coöperate with each other and with the governmental agencies if we are to reap the full benefit of the public measures designed to achieve our independence. If public measures are not energetically followed up by private enterprise and individual initiative, such measures cannot of themselves give us the desired independence. Responsibility for attaining this end rests not upon the public or the Government but upon us as individuals.

Any public measures that are instituted to safeguard those who enter upon new chemical enterprises have for their purpose making the country independent. Therefore, those who enter any of these favored fields must assume the task of making the country independent in the whole of the field they select and not alone in that part which happens to show immediate or large return. The less known and less profitable products in the field will also have to be made and the unexplored portion investigated here, if full faith with the public is to be kept. If, for example, ten articles make up the known whole of such a selected portion, we dare not merely make the easy or the profitable four. We must make the more difficult or less profitable six as well, so that we may have at all times adequate domestic supplies. Further, we must also lead in the development of all such fostered industries and wrest from them through investigation, research, and application all that ingenuity, foresight, skill, and courage can make them yield. We must not be "trailers" to any one!

Can not a democracy by voluntary effort achieve all that an autocracy can compel?

IX

CAPITAL, LABOR, AND THE STATE

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An attempt to prophesy now as to the relations after the war between capital, labor, and the State would be an essay into a wilderness of contingencies. The raging conflagration in which America has only just begun to take a fully conscious part contains every possibility and no definite probability. In many things the impossible has become the usual and the usual the impossible. Therefore, we shall chiefly examine the actual changes that have taken place in the relations between these three divisions of the community during our first year in the war, try to appraise the forces which seem to account for those changes, and inquire in what direction these forces seem to be leading us.

CAPITAL AND THE STATE BEFORE THE WAR

Before the outbreak of the war industrial concentration was leading this country steadily into political concentration; the individual States were losing their relative political importance, and control had entered into a period of definite nationalization. The period from the Sherman Law of 1890 to the Clayton Act and

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the Federal Trade Commission Act of 1914 covered the apprenticeship of America in the control of concentrated industry. In the later year we had come to know that illegitimate control of the market should be quickly identified by its industrial and commercial manifestations, that certain business abuses which are typical elements in such control must be penalized, and that pernicious restraint of trade is not preventable so much by punishing restraint as by vigilant national administrative regulation of the practices of trade—a regulation centered in the National Government.

Industrial Concentration Followed by Nationalized Control.—Thus political concentration was resulting from industrial concentration. The enactment of the Sherman Law by Congress in 1890 had been followed by a veritable crop of Sherman laws in the States. But in the past ten years, confronted with the magnitude of the concentration problem, the States in the main had tacitly left the Federal authority to deal with it. Control of railroads had followed a similar course, the intrastate regulation by a State being inherently a matter of Federal concern because of the interdependence of all transportation. And since the Minnesota Rate Decision in 1913,² in which the Supreme Court of the United States declared that Congress could at any time take the intrastate regulation of carriers under the exclusive control of the Federal Government, it had been generally felt that such exclusive Federal regulation was closely impending.

Before April, 1917, then, reliance upon Federal control was becoming to an increasing extent a mental habit of the people. Witness, for instance, the great advisory and coöperative service by the departments of Agriculture and of Commerce and their daily part in the life and work of the farmer, the merchant, and the manufacturer; the policing by Federal agents, under the Harrison Narcotics Law, of the sales of every corner drug store; the Federal employment exchanges connecting the man with the job inside of the somewhat blurred State boundaries; Government aid to the States in building roads and in carrying on industrial education; the work of the Federal Reserve Bank system, in directly facilitating and protecting individual commercial credit transactions; the actual making of loans by the Federal Farm Loan

² 230 U. S., 352.

Bank out of Government funds directly to farmers; and finally, by constitutional amendment, as if for financing from vast accumulations of private wealth these expanding national functions for the general welfare, the exercise of that long-withheld power—the power to levy taxation on private incomes. Let it be remembered, too, that most of these developments came under the administration of a political party traditionally opposed to all centralization of national power.

CAPITAL AND THE STATE DURING THE WAR

What does this centralization of State control mean? It means that the futile grapplings of the separate States with large industrial problems are practically at an end. It means that before the war the Government of the United States was beginning to develop sufficient power to deal with capital effectively in the interest of other groups. The Federal Government's direct regulation and control of industry, to the extent that they have thus far taken place in the first year of participation by the United States in the war, are by no means so startling a departure as some would have it. The war, by making necessary a great intensification of our industrial processes and at the same time sharpening our sense of the public interest, has driven us at once to methods toward which we were tending under normal industrial life. Tendencies are swiftly developed into accomplished realities by war. Government control of railroads and some of the other forms of Federal war control, as, for instance, control of fuel production, regulation of profits on necessities of life, and fixing of prices for foodstuffs, are, as forms of regulation of industry, not inconsistent with the established industrial system and do not run greatly beyond the powers for which the Federal Government was beginning to reach before 1917. Private profiteering was beginning to be a matter of governmental concern in peace time and was coming to be dealt with through State regulation. Suddenly war made it acutely a matter of public concern and brought us face to face with the fact that in an industrial community practically all property and business related to the necessities of life are really affected with a public interest and should, as had the railway business, come under State regulation. The old public offense of hoarding the necessities of life for a high

market, denounced as a crime under the laws of England in the reign of Henry III and relieved, there, from that status only in 1844, has in war time become once more an offense under the law.³ When, at the same time, we see our now strongly centralized democracy assuming the power to buy seed,⁴ fertilizer,⁵ and food-stuffs⁶ when they are plentiful and to sell them again to the public, we should not be greatly shocked if we were told that hereafter in times of peace the function would be exercised by the Government either of purchasing, storing, and distributing food-stuffs or of so controlling their purchase, storage, and resale as to eliminate unreasonable profits. A successful experiment is apt to produce a habit.

Disintegration of Alliances between Financial Groups.—It is a peculiar fact that at the very time when the Government is relying upon accumulated wealth to finance the war and to carry on its production it is of necessity lending itself in large measure to forces which from all directions are undermining the political and social strength of capital. Probably the most signal instance of this—to be presently discussed—is the Government's promotion of labor's new activity in determining wages. That has been due in part, of course, to the tangibility of property and the intangibility of labor. But capital has lost power in other directions and for other reasons.

In war time the large holders of accumulated wealth have lost their solidarity. Capital has become as a house divided against itself. During times of peace, when public efficiency as a motive was almost a stranger to us, all groups in the world of capital worked in close harmony. A public movement against any group naturally brought from the rest a hostile reaction, a mustering of forces—naturally, because they are largely interdependent. Much capital of banks and insurance companies has been invested in railroad securities. Railroads in turn are immense purchasers of equipment; and equipment producers in turn are large purchasers of coal, lumber, iron, steel, and machinery. Do we not remember with what vigor the banking and equipment

³ 65th Congress, 1st sess., chap. 53, sec. 6, approved Aug. 10, 1917.

⁴ *Idem*, sec. 3.

⁵ *Idem*, sec. 27.

⁶ *Idem*, sec. 11.

interests would go to the front for higher railroad rates or would present a common hostility to a fight for railroading efficiency; and how when the great banking interests feared the prejudicial effect on their power of the Federal Reserve System (for the existence of which, by the way, they are now profoundly grateful), the insurance and manufacturing interests opposed it or stood aloof?

Here, again, the law of efficiency—the law of justice sharpened into affirmative action—had already begun to work before the outbreak of the war. The provision of the Clayton Act abolishing interlocking directorates was a natural step in the winning of national efficiency, through weakening the most pernicious aspect of the operating alliances between capital groups. But, quite irrespective of interlocking directorates, the alliance itself is a natural one in a system of production through private capital. That alliance stood in full cohesiveness in April, 1917.

America entered the war, and suddenly that alliance was rent asunder. The State in peril had become the great consumer. The ordinary commercial instinct for utmost profits, which was the basis for the solidarity of capital groups as against the consumer, suddenly became as "profiteering" a cause for the mantled cheek, and the members of the brotherhood at many points were left staring at one another with suspicion and hostility born of elemental patriotism. The manufacturer, eager to sell to the Government at a reasonable price, turned upon the producer of raw materials with the charge of "profiteer" and "hoarder." The raw-material man, denying the charge, complained loudly against the banker for robbery and against the railroad for lack of equipment due to inefficiency; while the manufacturer and raw-material man and the railroads now joined together in the cry against the manufacturer or dealer in foodstuffs, who by profiteering was raising the cost of living and was thus responsible for the irresistible pressure for wage increases, which in turn was forcing up the cost of production.

Into this disorganized capital group now stalked the Government as a buyer of gigantic quantities, of total outputs, and as guardian of the consumer. The commandeering power lay ready in its hand, while through the Federal license it could instantly close the doors over great areas of business, and through its new taxation laws or its other war legislation it held the key to the

contractors' ledger vaults. Armed with these irresistible weapons, it could apply strictly its yardstick for fixing prices and measuring profits. This disintegration of the alliances of big business was much accelerated when the Government took over the American railroad systems, directly and indirectly the greatest and most diverse purchaser in industry. But it was the quick throwing aside of the old, consolidating motives of "business" by the majority of great business executives, in the presence of our national peril which made relatively easy the rapid entrance of Government control. Let it be borne in mind that these motives will cease to operate with the return of peace, and that capital will naturally join hands again for regaining what it can of the ground it has lost.

Perhaps the most conspicuous single development up to this time as affecting the relation between capital and the State has been the Government's plunge into private insurance. Under Article IV of the act relating to war-risk insurance, passed in October, 1917, the Government offers to sell to every enlisted man and officer, whether or not in active field service, and to every member of the female Army and Navy nurse corps, insurance against death and total permanent disability, at the regular premium rates "based upon the American Experience Table of Mortality." In the first nine months of business the Bureau of War Risk Insurance has written policies for over two million applicants in the aggregate amount of over nineteen billion dollars, over one-half in amount of the total combined life and total-disability insurance in force in private companies in America to-day. So far, of course, this involves nothing that capital need view with alarm as to after-war business. But the law goes on to promise that within five years after the termination of the war the insured will be allowed, without medical examination, to convert his term policy into Government insurance in the form of ordinary life, twenty-payment life, endowment, or other usual forms. Here, then, with the return of peace will be the State operating on a gigantic scale the function of life and disability insurance, heretofore considered a free and exclusive field for private enterprise. And the benefits of that activity will be enjoyed not only by civilians throughout the land who served in an active branch of military service without receiving any disability, but also by those who, coming from an inactive branch at the end of

the war, simply exchanged one swivel chair for another. Already movements are on foot to extend the scope of this governmental activity to civilian Government employees. Is it not rather to be expected that the precedent of insurance for all in a group, without medical examination, will result in a public opinion which will demand that life insurance, that greatest refuge from gnawing anxiety, shall be afforded to every man at some price because he needs it, and not because he is healthy and young enough to pass a physical examination? It is true that in any form of State life insurance there must be something to take the place of the personal solicitation which is done by private enterprise; but if the public becomes sufficiently convinced that security for the family from destitution, upon the death of its bread-winner, is a public necessity and a public right, it can readily find means for obtaining the premiums through the technique of taxation.

Capital's Position Weakened by the War.—Briefly appraising, then, the relation between capital and the State, in America, at the end of our first year in the war, we have the paradox that private capital at the time of its greatest public utilization is occupying a relatively weaker position with reference to the State than at any other time in two generations.

LABOR AND THE STATE DURING THE WAR

It has been very different with Labor. Labor's position in the State is distinctly stronger than it was prior to 1917 or, in fact, at any time in American history. In 1916 representatives of organized labor as such had no voice anywhere by official sanction in the fixing of labor standards or in the settling of industrial disputes—a fact which vividly discloses the weakness of trade unionism as a tangible political factor. In 1914 the provision in the Clayton bill which exempted trades unions from the prohibition against combinations to enhance prices was opposed but was incorporated in the law as enacted.

In our first year in the war the principle has become thoroughly established, in the production of war necessities—particularly of war equipment, where the State is in fact or in essence the producer and merges itself with capital—that the workers themselves have the right to assist in the formulation of the con-

ditions under which they shall work and of the wages which they shall receive. And it is particularly significant that the Government itself initiated this first step in the democratization of industry. In other words, where the State, during the war, has become the consumer it has imposed heavy restrictions upon capital; where it has become the producer it has made liberal concessions to labor.

In America the unions, although far weaker in point of numbers than the British unions, have been forced in exchange for these new advantages to concede very little of the ground which they had at the beginning of the war. In the first place, compulsory arbitration of labor disputes has not been adopted, as it was in Great Britain under the Munitions of War Act of July 2, 1915; nor can it be said that such a law seems more probable to-day than it did six months ago. The strike or the threat of a strike, after a year of war, can still be used in the greater part of war industry for the purpose of forcing higher wages, not only without violating law but also without running counter to any express arrangement of honor. In only a limited sphere of production have the national leaders of organized labor expressly agreed not to use the weapon of the strike. But in making even these concessions they have won new and important ground for their future development. Furthermore, wages in the production of war necessities have responded to the mounting cost of living far more readily than in Great Britain.

The Government acted quickly to enlist labor's interests in the war. At the very outset, in April, 1917, Mr. Gompers, president of the American Federation of Labor, as a member of the Advisory Commission of the Council of National Defense, with forthright patriotism and statesmanship, joined in a public proclamation that workers and employers must on both sides refrain from capitalizing the national crisis in production. This manifesto, coupled with other public utterances by Mr. Gompers, urging labor's whole-hearted support of the war, went far to prevent an unrest which might have developed at once out of the sudden changes in the cost of living and out of labor's new strategic position.

Labor's New Part in Adjusting Disputes.—The first appearance of real trouble was promptly made the occasion for an

understanding between the Government and labor, which largely prevented the accumulation of grievances and which became a precedent in the production of war necessities. This was in cantonment construction. In June, 1917, the Government was confronted with the need for the construction in about three months' time of sixteen wooden cantonments, each to accommodate about 40,000 men, together with all necessary commissaries, hospitals, hangars, remount stations, refrigerator plants, power plants, and other service buildings, water supply, and sewage disposal. This building venture, which was by no means all of the War Department's building program, called for about 150,000 workers at the peak load of the work. Local unions at some points insisted immediately upon the recognition by the contractor of the union shop—a serious menace to the entire program. On June 19, 1917, the Secretary of War entered into a brief written memorandum with Mr. Gompers⁷ in which it was agreed that the Government would recognize at each cantonment the union scales of wages and hours prevailing in that locality, that the unions would not oppose the open shop, that no labor dispute should interrupt production, but that such dispute would be submitted to an adjustment board of three, whose decision would be treated as binding and final. The adjustment board of three was to be appointed by the Secretary of War, one to represent the public, one the Army, and one labor, the last to be nominated by Mr. Gompers. Thus, by a very simple act the Government entered into its first agreement with a labor official as such and for the first time recognized a union wage as such.

The adjustment commission so created, of which John R. Alpine, president of the International Association of Plumbers and Steamfitters, was a member, kept the peace throughout the period of cantonment construction and effected a continuity of production despite the occurrence of a number of disputes. This arrangement was followed in August by similar agreements covering the work of longshoremen at the ports and the building of shipyards and of ships in private yards where the Government might have ships under construction. These agreements have in the main served their purposes of preventing serious interrup-

⁷ See "The Adjustment of Labor Disputes Incident to Production for War in the United States": *Quart. Jour. Economics*, vol. 32, p. 122, November, 1917.

tion of work and of developing a constructive policy in wage adjustments.⁸

A judicial tribunal for adjusting wage disputes in the West was appointed in September, 1917, by President Wilson, in which J. H. Walker, president of the Illinois Federation of Labor, and E. P. Marsh, president of the Washington Federation of Labor, balanced two representatives of employers. This body, in a tour of the Western States and of the Pacific coast, brought about some important adjustments and did much to impress upon organized labor the Government's sympathetic interest in the industrial relations incident to war production. On January 8 the Government issued, through the Council of National Defense, a statement of a program for a central labor administration, part of this program to be the establishment of "machinery which will provide for the immediate and equitable adjustment of disputes in accordance with principles to be agreed upon between labor and capital and without stoppage of work. Such machinery would deal with demands concerning wages, hours, shop conditions," etc. As a result of this preliminary step, there was convened in Washington a War Labor Conference Board, composed of five representatives selected by employers and five selected by organized labor, the former group having selected ex-President Taft to act as its counsel, the latter Frank P. Walsh, formerly chairman of the Federal Commission on Industrial Relations. On March 31 this conference board issued a report and recommendations, in which it urged the immediate establishment of a "National War Labor Board of the same number and to be selected in the same manner and by the same agencies as the commission making this recommendation," this board to act by way of mediation and conciliation either by itself or through machinery to be created by it for action in various parts of the country, and to adjust such matters by final determination where mediation and conciliation might prove unsuccessful. This commission is not to take cognizance of a controversy "where there is by agreement or Federal law a means of settlement which has not been invoked." The report then went on to declare as the unanimous statement of this conference that "the right of workers to organize in trade unions and to bargain collectively, through cho-

⁸ See "Labor Problems in the United States During the War": *Quart. Jour. Economics*, vol. 32, p. 333, February, 1918.

sen representatives, is recognized and affirmed. This right shall not be denied, abridged, or interfered with by the employers in any manner whatsoever. . . . Employers should not discharge workers for membership in trade unions, nor for legitimate trade-union activities." Then followed, under the heading "Existing conditions," two important paragraphs, as follows:

"In establishments where the union shop exists the same shall continue and the union standards as to wages, hours of labor, and other conditions of employment shall be maintained."

"In establishments where union and non-union men and women now work together, and the employer meets only with employees or representatives engaged in said establishments, the continuance of such condition shall not be deemed a grievance. This declaration, however, is not intended in any manner to deny the right or discourage the practice of the formation of labor unions, or the joining of the same by the workers in said establishments, as guaranteed in the last paragraph, nor to prevent the War Labor Board from urging, or any umpire from granting, under the machinery herein provided, improvement of their situation in the matter of wages, hours of labor, or other conditions, as shall be found desirable from time to time."⁹

The National War Labor Board, in pursuance of this report, was created in April, 1918, and has already effected important and far-reaching settlements.

Labor's Part in War Administration.—Coincidentally with and largely as a result of the establishment of these adjustment mechanisms it has come to pass that national leaders in organized labor have been sitting with important administrative duties where their viewpoint can have direct influence upon the shaping and creation of labor policies. Thus John Donlin, president of the Building Trades Department of the American Federation of Labor, sits as a voting member of the emergency construction committee of four of the War Industries Board, which selects

⁹ See U. S. Dept. Labor Bureau of Labor Statistics *Monthly Review*, vol. 6, No. 5, pp. 54-58, May, 1918.

contractors for construction work under the War Department; W. S. Carter, president of the Brotherhood of Engineers and Firemen, and Joseph A. Franklin, president of the International Brotherhood of Boilermakers, Iron Ship Builders, and Helpers, are respectively director and assistant director of the division of labor of the Federal Railroad Administration; John P. White resigned from the presidency of the United Mine Workers of America to join the staff of the Federal Fuel Administrator; William N. Doak, vice-president of the Brotherhood of Railway Trainmen, has been on the staff of the Food Administration; while labor representatives are to be found at a score of other points either in official administrative places or on committees which have semi-official standing. These developments could not have been carried forward to success but for the breadth and forceful ability of a small group of union leaders.

Now a word as to how American labor has fared in connection with wages. We have seen that Mr. Gompers, in April, 1917, joined in a declaration of the Council of National Defense that neither side, capital nor labor, was to use the public exigency as a club for improving its position as against the other. It was insisted by employers in the early months of the war that this manifesto must be interpreted to mean that there was to be no pressure from labor for wage increases during the war. But this argument was soon lost sight of under the pressure from employers themselves, when the sudden demand for labor began to be felt. For there has not been, as in England under the Munitions of War Act, any prohibition or check against wage increases in munitions plants. The consequence has been a steady course of competitive bidding among manufacturers for the mobile labor supply, and a resultant steady increase in wages, which in all cases have advanced materially and have in some cases advanced more rapidly than the cost of living. The Government has become fully committed through its war wage commissions to the method of ascertaining statistically the percentage of change in the cost of living since the establishment of the pre-war wage, and of applying that percentage, or index of increase, to the pre-war wage. The Shipbuilding Labor Adjustment Board initiated this index method,¹⁰ and it has been pursued scientifically by the

¹⁰ See *Quart. Jour. Economics*, vol. 32, p. 333, February, 1918.

railroad wage board, appointed by the Director General of Railroads.¹¹

CAPITAL, LABOR, AND THE STATE AFTER THE WAR

What, then, can we say about the future of industrial relations in the United States? This much we know—that new and bold methods have been adopted. Some of these methods, as we have seen, had already been foreshadowed by recent normal developments in American industry and institutions; the principles behind them may take such root in American life during the war as to survive into the new era. Such precedents are the Government control of railroads, heavy supertaxes upon large incomes and excessive profits, governmental regulation of hoarding and speculation in foodstuffs, State control of profits from or operation of munitions plants, and the carrying on by the State of public life insurance. The regulation of business methods, profits, and prices through the Federal license system is not apt to be forgotten as a tool in statecraft. Furthermore, we may expect public opinion to retain its newly sharpened distinction between essential and non-essential industry or commodities, applying that distinction in such matters as taxation, railroad rate classifications, and the adjustment of contributions by employers to workmen's compensation funds.

In most of the war-time developments just noted the Government has curtailed the power and earnings of capital and has materially weakened the position of the capitalist or investing and producing class as against the consumer. On the other hand, the new position won by labor through governmental action, which carries with it the implication of a far-reaching change in the relations between capital and labor, has come without any substantial historical basis in pre-war days. Will it survive the war? Will these precedents for the democratization of industry become the foundation for great changes in the social, industrial order of America?

Conservatism of Organized Labor in America.—There has come recently from Great Britain a public declaration of great signifi-

¹¹ See "Report of Railroad Wage Commission to Director-General of Railroads," May, 1918; particularly pp. 16-28, 79-98.

cance—the Report on Reconstruction, by a subcommittee of the British Labor Party.¹² This document has come out of an intellectual ferment which has run a course of increasing intensity among the communities of Europe during the war. This ferment has found expression in a torrent of idealistic prophecy from able British and Continental writers and has deeply stirred the minds of men everywhere. It has moved probably the ablest exponent of capital in America, Mr. Schwab, of the Bethlehem Steel Company,¹³ to predict publicly that the workers will come to share in the control of all industry. The British declaration calls for the universal minimum wage; for complete state insurance of the workers against unemployment; for the democratic control of industrial methods through participation by the workers in such control “on the basis of common ownership of the means of production,” accompanied by an “equitable sharing of the proceeds among all who participate in any capacity” in production; for state ownership of the Nation’s land; for the immediate nationalization of railways, mines, and electrical power, canals, harbors, roads, and telegraph; for the expropriation of industrial insurance companies; for the continued governmental “control of the shipping, woolen, leather, clothing, boot and shoe, milling, baking, butchering, and other industries; for a system of taxation on incomes or on capital which will pay off the national debt without encroaching directly or indirectly upon a fair minimum standard of living for the mass of laboring folk and upon the struggling households of professional men and small traders.” “In this matter,” says the report, “the Labor Party claims the support of four-fifths of the whole Nation, for the interests of the clerk, the teacher, the doctor, the minister of religion, the average retail shopkeeper and trader, and all the mass of those living on small incomes are identical with those of the artisan.”

These are ideas for which, in the main, the British Labor Party seems to stand. They are the natural offspring of the marriage in Great Britain between socialism and trade unionism. This alliance bears the name of the Labor Party and has ex-

¹² See U. S. Dept. Labor Bureau of Labor Statistics *Monthly Review*, vol. 6, No. 4, pp. 63-83, April, 1918.

¹³ Now Director-General of the United States Shipping Board Emergency Fleet Corporation.

erted an increasingly powerful influence in British politics during the course of the war. When we come to look for the influential public group in America with which labor is strongly allied and which would surely be heard to insist upon such a program or a material part of such a program, we find none. Probably nothing in the history of trade unionism in America distinguishes it from its history in other countries as clearly as its separation from and its hostility to socialism. For reasons too complex to be examined here, the American Federation of Labor has for years rejected every advance made to it by the socialists.

Perhaps no stranger or more vivid revelation of the dislocation of American labor leaders from advanced democratic doctrine could have taken place than that which occurred in Russia in June, 1917. Let us picture to ourselves the meeting of the delegates of the Workmen's and Soldiers' Council of Russia, among whom were then seething the wild dreams of labor's expropriation of capital and control of production which a few months later enabled Lenine and Trotzky to capture Russia. These delegates were assembled in Petrograd to hear the message from American labor, uttered by their brother in the labor movement from free America, James Duncan, first vice-president of the American Federation of Labor and a member of the United States Commission to Russia. How did Mr. Duncan rouse the spirit of comradeship in ideals of all those who toil? Mr. Duncan recommended (1) speedy legislation for public compulsory education, (2) the eight-hour workday, (3) the right of labor to strike, and (4) unionization of Russian labor.¹⁴ This represents Mr. Duncan's farthest flight into democracy in such an atmosphere; nor has the thought of the dominating party in the Federation of Labor or in the railroad brotherhoods been winging farther than this. Most of American organized labor's official thinking up to the present time, so far as concerns industrial problems, would seem to the majority of British labor men to-day as a message from the distant past. In November, 1917, at the annual convention of the Federation of Labor, it was considered a distinctly progressive step when the Federation endorsed (to be limited for the present to purchasing) the Rochdale coöperative system,

¹⁴ Report of Proceedings, Thirty-seventh Annual Convention, American Federation of Labor, 1917, pp. 335-338.

which, since 1840, has managed to deprive the middleman in England of untold millions in profits and has been of incalculable assistance to the British wage earner. Yet in 1868, half a century ago, the National Labor Union, a predecessor of the American Federation (public education and the eight-hour day being then long-established demands of labor), was following up a series of favorable references to coöperation by organized labor, extending over a period of thirty years, by calling in its platform for the establishment of coöperative stores and work shops.¹⁵

In other words, in America organized labor has kept itself in the main aloof from the consumers in their political efforts. Within the sphere of labor's own immediate concerns it has won its successes while accepting the fact and principles of our established industrial system; and up to June, 1918, it had fastened upon no new constructive idea for labor during the fifty years of industrial concentration.

This settled conservatism in the dominant group of the American Federation and its failure to champion common labor actively have stimulated, by reaction, the development of numerous "secessionist" and rival organizations, and also the recent extensions in the ranks of the Industrial Workers of the World. These are more radical groups, which, without having themselves at the moment much tangible status, greatly impair to-day the solidarity and strength of organized labor in the United States.

But a sudden expression of constructive ideas has just come from the American Federation, which may possibly foreshadow a new influence for it in American life. In June, 1918, at its annual convention, it adopted the report of its Executive Council in which three important propositions are set forth.¹⁶ The first embodies a new championship of common labor, declaring, "We have maintained that there are no workers wholly unskilled, and the distinction between wage earners is one of degree only. The so-called unskilled or common laborers are the backbone of industry. Low economic standards cannot prevail among these workers without injury to all. We maintain, therefore, increased efforts must be made to organize these and all workers in order

¹⁵ "Documentary History of American Industrial Society," edited by John R. Commons and others, vol. 9, p. 219.

¹⁶ See Report of the Executive Council of the American Federation of Labor to the Thirty-eighth Annual Convention, St. Paul, June 10, 1918, pp. 69-71.

that there may be established machinery for self-betterment and that the workers may take their rightful place in determining questions of life and work." The second proposition was that "Every worker has a right to be freed from all avoidable uncertainties of employment—both from those arising through poor labor administration and from mismanagement in production, and the effects of speculation in raw materials or finished products." The third was expressed as follows: "The Executive Council believes that in all large permanent shops a regular arrangement should be provided whereby, first, a committee of the workers would regularly meet with the shop management to confer over matters of production, and whereby, second, such committee should carry, beyond the foreman and the superintendent, to the general manager or to the president, any important grievance which the workers may have with reference to wages, hours, or conditions. It is fundamental for efficiency in production that the essentials of team work be understood and followed by all. There must be opportunity for intercourse and exchange of viewpoints between workers and managers. It is this machinery for solving industrial problems that is fundamental."

The Executive Council's declaration on common labor, if followed up, may strengthen the Federation considerably; and it is of peculiar interest also because it implies an eventual activity by organized labor in the up-grading of its workers. In the two latter constructive ideas for industry—its stabilization and its democratization—lie great possibilities for the future both in national productiveness and in social harmonization; and they are ideas applicable to present conditions because they have already been partly accepted by public opinion. The shop committee is to be found here and there throughout American industry and has been repeatedly promoted by the Shipbuilding Labor Adjustment Board.¹⁷ It has also been recommended and promoted by the British Ministry of Labor and the Ministry of Reconstruction.¹⁸ The question of the stabilization of industry has been definitely approached by the American industrial engineer, who

¹⁷ See U. S. Dept. Labor, Bureau of Labor Statistics, *Monthly Review*, March, 1918, p. 67; May, 1918, p. 127.

¹⁸ See particularly Industrial Report, No. 1 ("Whitley report"), published by the Ministry of Labor, December, 1917; and "Supplementary Report on Works Committees," published by Ministry of Reconstruction, March, 1918.

is testing our methods for maximum returns from plant investment.

If the American Federation should follow up these two ideas effectively, it might possibly come to exercise a stronger influence on after-war developments than if it were to champion a more radical and diverse program. But this is certainly true: that if the leaders in organized labor lead no more constructively than they have in the past, their influence in effecting changes in industrial relations after the war will be relatively small. In such event, any material democratization of industry in America will be due either to the force of European precedent along trails which may be blazed there, or to American statesmanship outside of the labor group, or to both.

Will the new standards of economic justice in the interest of the consumer and of the worker which have been established during the war be carried further under the motives of peace time, or will they be partly or wholly lost through the reassertion of the old pressures from capital? That question brings us to ask what will be the State's motives with the restoration of peace.

National Productiveness and the War Debt.—Leaving aside all consideration of the effects of such international economic rivalry as may follow the war, we know this—that one of the first definite purposes of the State will be to pay its war debt. The strength of that purpose will depend upon the final size of the debt, which even now presents an acute problem in taxation. The State will be forced to levy large taxes on incomes and on excess profits, but in what proportion? On what classes? And to what extent will the State permit capital to shift the burden through low wages in production and through high prices in distribution? Here, again, trails of invention are apt to be blazed in Europe by more pressing necessity than ours, although we may never be forced to follow them far, if at all. In Germany, where the national debt already exceeds one-half of the total aggregate wealth, the imposition of a tax not only upon incomes but upon capital itself is being freely predicted. In Great Britain the total war debt of over £6,300,000,000 (roughly 31 billion dollars) constitutes more than a third of the total private wealth.¹⁹ On January, 29, 1918,

¹⁹ F. W. Pethick Lawrence, "A Levy on Capital After the War": *Contemporary Review*, March, 1918, p. 308.

in the House of Commons, Mr. Bonar Law remarked that a levy on capital might probably prove to be "the least objectionable method of liquidating the debt," while Mr. Asquith admitted that he did not desire to rule out in some contingencies a tax on capital, though the difficulties in it were to his mind insurmountable.

This is enough to show us that after the war capital will be sharply upon the defensive. Shifts of citizenship and of domiciled capital from domestic to foreign investment to escape national burdens will be apt to develop and to require preventive legislation. The middle economic class in America, which has been consolidating as the consumer, will doubtless be strong enough to fight powerfully for the imposition of a graduated tax system which would throw the principal burden of the war debt upon the great private fortunes and business institutions. But at this time a levy on capital, or, in other words, partial "confiscation" of capital, after the war seems as a possibility decidedly remote for America, mainly because the present relation between our war debt and our aggregate private income does not yet suggest the necessity of resorting to such extreme financial relief.

But the accumulated wealth of a nation is relatively unimportant in the long run in determining its ability fully to overcome an oppressive debt. The real economic basis of a nation's industrial strength is its power to produce; and human toil is the living element of that power. The character of that toil to-day determines the nation's wealth to-morrow. Will not this old truth under after-war conditions become a dynamic motive? Can any nation of to-morrow, struggling under debts of undreamed magnitude, allow the chronic occurrence of the huge losses in productivity represented by physical debility and shortened lives of workers due to overstrain or under nourishment, by enforced idleness, or by indifferent or hostile workmanship? Because national solvency may depend upon productivity, is it not rather a safe assumption that in the America of to-morrow, under the motive of economic self-defense, the State will be interested in seeing established in industry such new labor standards as will bring the best results in quality and quantity of output per unit of cost?

Democratization of Industrial Management and the New Responsibilities of Labor.—It would indeed be a peculiar social phe-

nomenon if, in America, the greatest constructive reforms for labor were won from capital without serious contest. Yet even that is not impossible. Impelled again in peace by the motive of national productivity, the State may follow along the path already cut and trodden in war. Its tendency will be to impose upon capital such a share for labor in the fixing of pay and of working conditions as will insure the most effective co-operation from organized labor in obtaining volume and quality of output. And it is by no means a foregone conclusion that capital will strongly resist such changes. What with immense taxes on incomes and profits, on the one hand, and what is apt to be an increasingly rigid price-fixing policy, on the other, capital will be forced by the State to cultivate its field intensively. It will concern itself as never before with every available opportunity for savings, and it will be apt to make concessions more readily to effect them.

But capital, backed by the State, will demand from labor, in return, a new concern for its own productivity and a true legal responsibility of organized labor for its acts. Under the craft guild system of mediæval England the wardens and searchers of the guild had the right and duty to inspect all members' work and to destroy it if found defective in quality. The natural tendency of collective bargaining to foster mediocrity was thus well checked. The group bargaining of unionism to-day, although confronted with a totally different set of conditions, will never be upon an entirely sound basis until it can deliver with certainty fair work for fair pay. But if union representatives are given the right to assist in regulating pay and shop conditions, will they not be forced to a new realization of the necessity for union-made productivity? And would this not be still more certain to be the case if this form of shop control should come to co-exist with profit sharing? To-day profit sharing is feared by unionism. But it has been a profit sharing which has been unaccompanied by coöperative shop control and which has thus not only tended to reduce the formal wage but has also tended to weaken the unions' cohesiveness. But union activity in shop control would supply the cohesiveness, and profit sharing would stimulate the effectiveness of that control.

Beyond this thought about labor's share in the management and profits of industry there lies the idea of coöperation—an idea

which, although it cannot be discussed in this brief space, cannot be ignored. That idea in various forms has gained vast headway in the world. As applied to retail purchasing of foodstuffs in England, it has led backward gradually from one process to another until to-day the obscure British housewife finds herself part owner of British flour mills, of golden wheat fields in Saskatchewan, and of tea plantations in Ceylon.²⁰ As invoked by the small farmer in the raising, standardizing, and collective marketing of his products, coöperation has, under Government promotion, immeasurably benefited Denmark, Belgium, and Holland, is fast making over rural Ireland, and has found various footholds in America. But in the mechanical processes of industry coöperation seems still to have a long road to travel, not only on account of the great political and commercial obstacles which it will encounter, but also because it would have to be based upon the conception that each man is deeply concerned not only with his own effectiveness but with the integrity of the workmanship of every other man in his shop.

INDUSTRIAL STABILIZATION

Again, the economic waste involved in industrial unemployment will, from motives of productivity, receive a new attention from the State. The newly augmented Federal labor exchange system will probably lead us to discover causes of the disease of unemployment and to seek ways to prevent it. Unemployment means not only idle men; it means idle capital and sleeping machinery. It means partially paralyzed productivity—one of the old luxuries incident to pre-war democracy which the Nation of to-morrow will not be able to afford. Will not the State undertake to prevent it where it is preventable? For instance, will railroads be allowed to ignore the regularly recurring necessities for repairs to roadbed and equipment and to "lay off" their labor in order to maintain in a time of diminished business a fictitious showing of profits and a regular dividend rate? Will the doors of shoe and textile manufacturers be shut for weeks at a time because great speculators in leather, wool, and cotton are

²⁰ See Emerson P. Harris, "Coöperation," New York, Macmillan Co., 1918, pp. 223-224. Also, Annual Report of Coöperative Wholesale Societies, Ltd. (Manchester, 1918).

disturbing price conditions and disabling the manufacturers from purchasing raw materials; or because manufacturers themselves prefer to delay production in order to effect a quick turnover of their capital invested in materials and labor? Will not the State's interest in continuous productivity here come to outweigh the private interests of the comparatively few? Will not private speculation necessarily give way in the end before public compulsory standardization? In Great Britain, where more intensive industrialization has generally brought about an earlier diagnosis than ours of labor problems, writers in the Labor Party upon "reconstruction" problems after the war have called strongly for the "decasualization" of industry. In America, organized labor has continued up to the present time to accept the "laying off" of men by the employer practically at will as an inevitable incident of industry. Yet the wage question is inextricably bound up with the question of continuity in production.

The wage is the mark of the class in industry which has no regular status. Industrial tradition has it that the individual worker has no contract with his employer and has hanging over him continuously the specter of discharge at the employer's convenience; that no matter how satisfactory his work may be, the worker may at any moment without the slightest responsibility upon the part of the employer be exposed to the risks and ravages of idleness. This insecurity of labor—in law, in tradition, and in practice—is the outstanding fact in the labor problem; more than any other fact it places labor in natural hostility to capital and to the rest of the industrial and civic world which is aligned with capital; it is the great subconscious element in the labor problem.

Yet the employer has not chosen the institution of the wage nor of the contingent employment of labor. Age-old tradition brought it to him, and he has used it in his competition according to the rules of the game—the rule that the man who produces most cheaply wins. Even in his resistance to wage increases the fear of his competitors who may be able to underbid him has generally been his chief motive. The bitterest struggles of labor in America are not to be laid to class antagonism but to unregulated industrial competition. The stabilization of employment and pay would not be strongly opposed by the employer if he could be shown that it will not hurt him more than the other

fellow. Suppose for a moment that the Government were by statute to define a list of industries capable of regularization, were to regulate speculation in raw materials used by them, were to lay special taxes for idle days in establishments within such industries, or were to require that, except by special ruling, employment of labor in such industries shall, after a certain time, begin to be upon a yearly basis. The final result of such a policy would be a decided increase in the productivity of the capital invested in these industries; a great improvement in the relation between employer and employee; and a scientific standardization of production based upon reckonable demand and supply over long periods of time, beyond what the public would have thought of as conceivable. And on the whole the manufacturing class would find it in the end a blessing. Many kinds of industry and a certain proportion of every occupation would always remain upon a casual or a seasonal basis; but even in these the conditions of production would be improved by the stabilization attained elsewhere, and labor would receive higher pay on account of the greater element of risk. At the same time, labor exchanges operated by the State or by labor unions could effect transitions with minimum losses through idleness.

Has America a New Opportunity?—Of course such changes are not to be wrought overnight; in whatever form they might come, they would require a long period of public education and of preparation. But has it been reserved for America to lead the way? Have we, in the stabilization of production, the opportunity to begin the solution of the wage question through beginning the elimination of the wage? It must be said that there are some indications which point in that direction. The economic self-sufficiency of America in supplying and in thus being able politically to control the methods of supplying most of the raw materials which it uses in production; the high course of wages in America as compared with other countries and the relatively high standard of living of the American workman; the slow rate of immigration into America which may be expected during the decade immediately following the war; the rationalization of the wage by the State, which, having already begun upon the basis of variations in the cost of living, must necessarily be carried

further into a consideration of the constancy of employment—all these peculiarly American facts point in this direction.

But perhaps the most important fact is this: In America the young man who works with his hands has never felt that he belongs unescapably in the wage class. By the scores of thousands he is to-day the foreman, the shipping clerk, the superintendent, the general manager, or the president. Industrial caste has threatened us but is still far off. The German system of industrial law has been built up in every way to preserve the wage workers as a class. The wage worker carries his wage disputes to State industrial courts for wage earners, on which an elected representative of labor sits as an associate judge; to special State courts also, in which he escapes the heavy costs of litigation of the ordinary courts, the wage worker fights out his commercial controversies. During employment the State affords him continuous free vocational education; during unemployment the great workingmen's clubs in which are lodged the employment exchanges are freely open to him, with all social conveniences, as are also the workingmen's hospitals; while throughout his working life he has, in the larger part of industry, State insurance against sickness, casualty, and the debility of old age. Briefly, the motive behind the so-called State socialism of Germany has been largely the crystallization of labor as a contented wage class. Great Britain, although in advance of America in such matters, as for instance in unemployment insurance, had up to the time of the war hardly begun to handle on deeply constructive lines the problems of industrial relations; and the dawning thought there of the democratization and decasualization of industry must struggle against the weight of eight centuries of British individualism and social caste. Has America perhaps lying before her, in the problems of irregularity in production, the opportunity of again establishing a new idea for civilization?

In the duration of the war and in the character of the peace lie many answers to the questions we have been considering here.

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X

CONCENTRATION AND CONTROL IN INDUSTRY AND TRADE

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Historical Survey.—Before the outbreak of the war in Europe in 1914 the policy of the United States with regard to concentration and control in industry and trade had been developed on the principle that competition was beneficial and that private monopoly was harmful to the general welfare. After a period of political discussion of several years this policy was first embodied in Federal legislation in the Sherman Act of 1890.

The meaning of the Sherman law was obscured by a haze of litigation and was only slowly developed by judicial decisions. The delay thus secured was utilized to bring about a great increase in the number of monopolistic combinations, especially between the years 1898 and 1902. As a result, popular, and therefore political, interest in this question became very active and led to further governmental investigation and to further efforts by the Department of Justice to animate the Sherman Act. The Industrial Commission, a temporary body for general economic inquiry, paid special attention to these combinations, while in 1903 a permanent investigating organ was established, called the Bureau of Corporations.

Monopolistic efforts had proceeded along two main lines—first, combinations by temporary agreement between formally inde-

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²In signing this paper the fullest acknowledgment is made to Dr. Francis Walker, chief economist of the Federal Trade Commission, the result of whose generous and patient collaboration permeates the whole.

178 AMERICAN PROBLEMS OF RECONSTRUCTION

pendent and competing companies, and, second, consolidations of competitors through corporate organizations which aimed at a more or less complete unification of ownership through holding companies or mergers. The earlier course of judicial decisions as well as the greater speculative gains of corporate combinations resulted in so pronounced a development of the latter form of monopolistic combination that it came to be regarded as typically American. But combinations by agreement were, nevertheless, widespread, though generally not publicly avowed, as they had been very explicitly declared unlawful.

As a device for employing great surpluses arising from combination and consolidation, such funds began to be invested in all sorts of remotely related or entirely unrelated industries. The result of this conglomeration of industries is to project into a field, perhaps uninvaded by either combination or consolidation, a competitor backed by credit and selling resources far in excess of what might be indicated for such an enterprise. Thus a by-product of unfair competition was produced, and the malignant fibers of monopoly tended to spread through the commercial tissues. These conglomerations are not in the nature of the integration of related units but are the collection through ownership of heterogeneous units. This, as stated, was at first largely practiced as a means of employment for large corporate or individual surpluses. Later the advantage of sheer money prestige enabled not a few of these casual ventures to develop into combinations or consolidations of the first class. Many of these are practically unknown and unidentified.

Legal Aspects of Consolidation.—The more active judicial prosecution of combinations by agreement, which developed shortly after the beginning of this century, resulted in the abandonment of many of these combinations by temporary agreement, though in many cases, of course, it led simply to clandestine formation and operation. The corporate consolidations could not hide themselves and were therefore compelled to fight for their existence in the courts. A series of decisions running from 1904 to 1911, culminating in the Standard Oil and American Tobacco decisions, established the principle that such forms of combination were well within the prohibitions of the Sherman law and tended to discourage further developments in that direction.

Two of these great corporate combinations, namely, the United States Steel Corporation and the International Harvester Company, were not proceeded against until after the Oil and Tobacco cases were decided. They were regarded in some quarters as less obnoxious, especially for the reason that they claimed to be "good trusts"—that is, combinations that did not seek to destroy their competitors. Both of these companies pleaded that to dissolve them would injure the export trade of the country. The final decision of these cases was deferred, because, it is generally assumed, of the abnormal situation resulting from the outbreak of the war in 1914.

Up to this point the whole trend of judicial decision was toward a broader and broader application of the prohibitions of the Sherman Act. The principal unsettled question remaining appears to be whether a monopolistic combination with the power to crush its competitors is not against public policy and contrary to the law, even though it were not shown to have exerted that power; whether a corporate combination that could dictate prices is not unlawful, even if its prices had been moderate, in the same way that a price combination of formally independent competitors is unlawful, even if the prices agreed on were low.

The Economic Question.—Back of this publicly disputed legal question was a disputed economic question, and it may be said that this was the crux of the matter. Apart from wide circles of more or less interested persons, there are apparently many quite disinterested ones who believe that these great combinations are elements of national strength and beneficial to the general public by reason of greater efficiency. Large business corporations resulting from natural growth due to efficiency are not here in question, but only the great combinations of competitors to restrict competition. This distinction, even when made, is generally lost sight of. Efficiency may be taken in various senses, but the most general idea of what constitutes efficiency is a low cost of production or of distribution.

Much has been said on this subject, but comparatively little can be pointed to in the way of definite published statistical evidence drawn from books of account. It is interesting to note that the Bureau of Corporations proposed in 1913 to investigate this question, but it is a very large and complex one, and the

Bureau never had sufficient funds to go beyond certain preliminary studies. In various industries, from time to time, reliable data have been made public, but they are too meager to answer the question positively one way or the other. Indeed, from all that is publicly known on this matter it appears probable that the facts would show quite variable conditions in this respect. In other words, the factors of economy that may be introduced by large combinations are not decisive factors.

In this connection it is worth observing that one should make sure that cause and effect are not confused. The large business organization may be large because it was efficient, rather than efficient because it was large. Again, a large combination may have low costs, and yet this may be essentially due to the efficiency of certain important original component elements of the combination. The report of the Bureau of Corporations on the International Harvester Company, for example, states that the low production costs of that company were not found in all its plants. Some of these had comparatively high costs, but this was offset by certain very important plants which were preëminent for their efficiency before the combination was made.

It is especially important to bear in mind, as already stated, that large industrial enterprises and monopolistic combinations are not the same thing. But for any kind of large enterprise it is also quite possible, and indeed quite probable, that beyond a certain size of plant and degree of integration of processes there is no gain which is not offset by losses due to greater unwieldiness.

The Theory of Anti-trust Legislation.—The policy of the Sherman law, however, was not founded on any economic theory concerning efficiency, but rather on an economic theory as to distributive justice and on a political theory as to the best kind of government.

The economic principle was that unchecked monopoly power in trade and industry strongly and almost inevitably tends to excessive accumulation of wealth among the few and to exorbitant prices and a high cost of living for the many—in other words, an abnormal contrast of rich and poor as distinguished from a more general and equitable distribution of wealth. The political principle involved was that political power goes very largely

with economic power, and that it is vain to strive for a really democratic form of government in a state where the bulk of the wealth is in the hands of the few.

To each of these points there is of course an answer to be considered. First, a monopoly may be tolerated, but regulated by state control. Second, a monopoly may be "popularly" owned. In each case the "limit" of the idea, as the mathematicians say, is state ownership of industry or collective socialism. Between the unconfined monopoly and this "limit" various stages of regulation or of popular ownership would be possible.

It is true that some of our largest corporate combinations are popularly owned to-day in the restricted sense that they have a very large number of shareholders, but the actual control is rarely, if ever, of a popular character. It rests really in the hands of a few. While popular management of business corporations may well be thought utopian, popular control of the management is not. Unfortunately in this country, at least, the ordinary shareholder has little chance to have his views even listened to. At a shareholders' meeting of a great express company a few years ago, according to published reports, some of these shareholders or owners of the company desired to know what was the surplus of their company, a fact long kept secret by the directors. A spokesman of the directors, an eminent New York lawyer, had the colossal impudence to tell them that information on such matters was properly reserved to the directors, who moved in a "higher sphere" into which they should not presume to intrude.

A comprehensive regulation of corporations, which probably could be effectively accomplished only by Federal legislation, has long been advocated by disinterested and intelligent people as necessary to bring our corporation law on a footing equal to that of England. While not directly a "trust question," it is one that is intimately bound up with the trust problem, and also with the problem of democratic industry.

Recent Legislation.—Just after the outbreak of the war, but virtually decided upon before it, two new laws affecting this question were passed by Congress—the Federal Trade Commission Act, on September 24, 1914, and the Clayton Act, on October 15, 1914.

The chief innovation in the Trade Commission Act was the sweeping prohibition of all unfair methods of competition in commerce, with provisions regarding administrative procedure devised to obtain prompt enforcement. The principal purpose of this law was to check those various abusive competitive practices that the ingenuity of many trusts had invented or adopted as weapons by which competitors had been suppressed or monopolistic power achieved, and to prevent the development of new unfair practices.

The Clayton Act made certain specific provisions of a similar character and especially prohibited the formation of combinations through the devices of interlocking directorates and holding companies.

To conclude as to the position of the United States just before the war, it may be said that the legal aspect of the main trust question seemed to be on the verge of settlement along the lines of recent historic development. There would then have remained only the residue in the form of conglomerations under unified financial control and as fully subject to legal discipline as any interstate competitor. This for the reason that just at the outbreak of the war a further definite step had been taken in advance with respect to abusive trade practices, which are frequently the means of building up monopoly.

Foreign Trust Policies.—In foreign countries a considerable variety as to trust policy existed before the war, and, generally speaking, three main groups may be distinguished, as follows: (1) combinations recognized as legal and with combination agreements, therefore, enforceable at law; (2) combination agreements invalid and unenforceable at law, but not criminal; and (3) combinations prohibited by the criminal law.

It is perhaps significant that of the third class, which is that to which the United States belongs, the most conspicuous examples were France and the great English self-governing colonies such as Canada and Australia. On the other hand, the most conspicuous example of the first class was Germany. Austria belonged to the second class. It is not easy to place England, because there one must look to cases and not to statutes to find the law, but it may be said to have been somewhere between the first and second classes, now on one side and again on the other.

Before the war combinations existed to a greater or less degree in all foreign countries of advanced industrial development. These existed abroad, as here, in countries of the third group for the reason that criminal laws, of course, have never succeeded in completely preventing the acts prohibited, though they are a powerful deterrent to many who would otherwise be disposed to do the things prohibited.

In European countries, especially on the Continent, the form of combination was generally an agreement between competitors for a limited period of time, such agreements generally being known as cartels. The combination by consolidation of interests was rare, although there were some large consolidations of competitors, as, for example, in the German electrical industry.

The German Cartel and Its Objects.—The Germans apparently borrowed the cartel directly from the French, but they developed it on a much larger scale. It was an institution peculiarly suited to their ideas and aims. Germany, as is now generally recognized, is a country with intense nationalistic ambitions, organized on an imperialistic plan and striving for domination in world commerce as in other things. The main purpose of industrial imperialism was to build up the national exports, the domestic consumer being as little regarded as is the foot soldier of an army of political aggression.

The cartel system made it possible to promote exports by means of low prices because the cartel could at the same time recoup the resulting losses through high prices in the domestic market. This in connection with its tariff made possible Germany's drives in international competition through heavy burdens laid on the German population. The National Liberals—the Junkers of industry—were for it, but the old-fashioned Liberals were against it. In other words, the cartel system in Germany was closely linked up with German imperialism and was, indeed, an important factor in it. It is a fairly safe generalization that, wherever the lust for national expansion is strong, there will be found powerful influences in favor of combinations of a national scope with the special object of seizing the export trade from competitors of other nations.

The most pronounced example of this sort of combination in Germany, as well as the one which most clearly evidences the

underlying policy of the German Government, was the potash combination. The old potash cartel, in which some Prussian government and other state-owned mines were members, broke down in 1910, but the German Government came to the rescue by taking the unusual step of passing a law which made it practicable to revive it. At the same time the law regulated the fundamental conditions of the industry.

Potash being practically a German monopoly, the usual price policy of the cartel system was reversed. In this instance it was possible, through combination, to sell in the export trade at high prices. The law provided, therefore, high prices for potash sold in the export trade and low prices for potash sold in Germany.

As the potash sold in the domestic trade went chiefly to the Junkers or large land owners, who were the bulwark of German imperialism, this seemed a very successful stroke of policy. It is a question, however, whether the potash industry did not suffer more than it gained, and it was certainly greatly demoralized by the overdevelopment of potash mines and a great increase in costs of production, due to limitations on output. Furthermore, this extremely selfish policy of "national" extortion will apparently have the effect of forcing other nations to develop different sources of potash supply, and Germany will then have killed the goose that laid the golden egg. It probably will prove, therefore, to be merely another illustration of the ultimate inefficiency of ruthlessness.

Changes Resulting from the War.—Very soon after the outbreak of the war in 1914 the industries of the European belligerents experienced radical changes. Most of these changes, however, were due to the necessities of war and not intended to continue after peace was concluded. The main movement was toward greater state regulation of industry, which in many cases was soon transformed into state operation and even state ownership.

Thus in England, where the railways were privately owned, a system of state operation and financial responsibility was immediately put into effect. Later the whole shipping industry was taken over. In the coal industry of England, after considerable experimenting with increasingly drastic state control, arrangements were made to take the mines over for operation by the

Government. Where less radical measures have been adopted the methods of state regulation have often been partly accomplished through and with the aid of government-fostered combinations among the industrial concerns affected.

The experience of England in these matters has probably not been more extreme than that of the other chief European belligerents. The state has on all sides reached into what was hitherto private industry, and, where it has not done that, it has sometimes encouraged or even compelled the organization of combinations among private producers. Thus in Germany the great Steel Syndicate was apparently on the verge of dissolution, but it is understood that shortly after the outbreak of war the German Government commanded the steelmakers to get together, with the intimation that otherwise their plants would be taken over by the state.

The experiences of the belligerents with regard to acts contemplated purely as war measures do not require extended consideration here, because they are not generally indicative of future policy. It is quite possible and in some lines of industry even probable that the pre-war conditions will never be restored. The railways in England may never be given up by the Government. Indeed, there was a strong movement in the direction of Government ownership before the war.

It is easy, however, to exaggerate this socialistic trend, because the nationalization of numerous industries or the compulsory organization of private combinations is not very significant compared with the commandeering of food supplies, raw materials, and facilities of production, the compulsory subscription to war loans, the issue of irredeemable paper money, and the compulsory service of individuals in the army and in industry. If economic and political conditions permit there is no doubt that most of these war measures will disappear or be essentially modified after the war.

The first years of the war, while the United States was still neutral, produced important if not profound changes in the industries of this country also, and some changes apparently in popular sentiment and public policy. The great increase in export trade to supply the wants of belligerents and of neutrals formerly supplied by them tended to disturb the established system in various ways. Orders were on such a large scale that indi-

vidual concerns could not always meet them individually, while buying for the belligerents was gradually centralized in a few hands.

There was apparently a general disturbance in the industrial morale—a feeling that the old order was perishing and that a new order was coming—among some perhaps a real moral disintegration due to the psychological shock of the war and the mental excitement from highly speculative gains. Things that would have aroused opposition and suspicion in former days seemed too petty to attract much attention from a people who were either spiritually absorbed in the course of the war or materially absorbed in making large profits out of it. Various manifestations of these conditions were evident both when the United States was still neutral and later.

Export Combinations.—In the Federal Trade Commission Act a provision had been inserted directing that an investigation should be made into conditions in foreign countries, particularly with respect to combinations, and to report thereon, with recommendations, to Congress.

Shortly before this Commission was organized, and just when the possibilities of a great development in our export trade, on account of the war, were becoming evident, a strong movement appeared in favor of a relaxation of the restrictions of the Sherman law with regard to combinations for the export trade. Sometimes it was insisted that a clarification only was necessary, and that such combinations were not unlawful.

The Federal Trade Commission made an investigation of the more readily accessible facts and ascertained various classes of opinion. This legislation was urged especially as beneficial to the smaller exporters. The most active proponents of this movement, however, appear to have been large financial interests. The great exporting corporations, some of which were large combinations, claimed that they did not need to combine with any one else. This was also generally true of concerns which had built up an export trade in goods sold under trade names or brands. Business men generally favored it. Professional men, lawyers, publicists, and even economists also appeared to be in favor of it by substantial majorities. There was no extensive or energetic opposition. The Federal Trade Commission reported in

favor of the general proposition in the spring of 1916, but Congress did not pass the bill permitting such combination (the Webb bill) until two years later.

In reporting favorably on this proposition the Federal Trade Commission recognized that there are various other factors of more fundamental importance to the development of export trade than the right to form combinations. This needs of course no argument in the light of the actual courses of the world's commerce and the laws affecting this matter. Cost of production and quality of goods, transportation facilities, banking facilities, and last, but not least, a knowledge of the business and of the people with whom one is doing business are really the chief things. Above all, a comparatively low cost of production is essential. The bulk of international commerce is in staple goods and goes on this basis alone. It is here that the theory of high prices at home and low prices abroad functions contrary to its purpose by raising the cost of living, the wage scale, and, consequently, the costs of production.

If a country produces the goods cheaply, but the people are too ignorant or lazy to sell them, plenty of traders will come and get them, because it pays. Before the Standard Oil Company was organized American kerosene oil was exported in a larger proportion of the total product than ever since, and it went to practically every inhabited country and island of the world. This is shown by the official commercial statistics.

Cost Finding and Price Fixing.—In 1915 prices in the United States had not shown any marked rise over the years preceding it, but in 1916 they began to advance so markedly in certain lines that governmental investigation was initiated. The first conspicuous instance was newsprint paper. According to the findings of the Federal Trade Commission the increase on this item was due partly to general trade causes and partly to the deliberate efforts of an important association of print-paper manufacturers. The Commission was averse to leaving the realm of costs and conduct for consideration of the question of prices, but, at the request of the business interests affected, the then members of the Commission attempted to arbitrate this question as individuals and by agreement of parties.

In the winter of 1916-17 an excessive rise in prices developed

in the anthracite coal trade, owing to various conditions, but particularly to profiteering among jobbers and dealers and a panic among the consumers. By investigation and moral suasion the Federal Trade Commission succeeded in bringing some relief. Also in the winter of 1916-17 an unprecedented advance occurred in the prices of pig iron and various steel products, and "fifty-dollar pig iron" was predicted in the trade journals. The high price of pig iron and steel products was due simply to enormous war orders, but its seriousness was not generally appreciated by those unfamiliar with the nature and importance of this industry. These occurrences, however, were merely a prelude to the price crisis that was to develop immediately after this country went into the war.

To those who were in touch with the industrial situation it became evident, after war was declared, that energetic action by the Government would be necessary with regard to prices. In the first place, the Government in spending the billions necessary for munitions and war supplies could not afford to pay more than a liberal price based on the necessary costs, while, secondly, the enormous purchases of the Government, by depleting the available supplies, would inevitably cause the prices to ordinary consumers to rise to impossible levels, unless some control were exercised.

It is true that a few of those in responsible positions in the Government service held the opinion that war supplies should be obtained by public bidding. The more enlightened officials and business men of the country, especially some of those who were associated with the Council of National Defense, recognized the futility of such a policy and began to plan for governmental price fixing for war supplies purchased by the Government in an effort to check the erection of a dangerous price structure and the consequent inflation of prices and demoralization of wage and living standards. In spite of all that has been done, the results feared seem to be drawing nearer.³

The President, as early as May, 1917, took steps to have the costs of some of the fundamental materials determined by the Federal Trade Commission and soon afterward laid down the general principle that prices to the Government should also apply to the public in general. While certain laws were on the statute

³ July, 1918.

books, even before the war began (and were extended afterward), which gave the Government the power to commandeer goods, factories, etc., on paying a fair price, the Government, with regard to most of the more important industries, proceeded on the principle of establishing maximum prices through agreements between the representatives of the several industries and the War Industries Board. The Government found a reasonable desire, on the part of the industries so dealt with, to accommodate themselves to the necessities of the case, although there were naturally frequent differences of opinion.

The question of coal prices was perhaps the most critical of all, but it was deemed wiser not to attempt to settle it by voluntary agreement. Congress passed a law giving the President the power to fix prices, and this was begun in August, 1917. It would be impossible here, even if it were appropriate, to enter into a detailed discussion of the prices thus fixed. Suffice it to say that at all times the limiting factor in coal production was the supply of coal cars at the mines, and that the production curve started up the day that prices were fixed.

In this period the Federal Trade Commission has had the function of determining the costs, but other bodies, such as the War Industries Board or the Fuel Administration, have had the responsibility of fixing prices. The alternative was Government operation, and for most industries this was deemed impracticable, or, in any event, a last resort.

This observation does not apply, however, to transportation, which is and has long been recognized as at least a semi-public function. At the end of the year 1917 all the railroads of the country were taken over by the Government for public operation. The problem of the even more critical war agency of ocean transportation was solved in a similar way by the Government taking over all available shipping. In both instances technical motives such as economizing carrying capacity and using it first for essential needs were predominant, but the question of rates of transportation and of insurance were also of great importance.

The Government has also gone extensively into the establishment of industrial enterprises on its own account and has organized a corporation to facilitate the financing of these and related private operations. These undertakings compete more or less

directly with private enterprises engaged in making munitions and supplies for the Government.

Control of Industry.—The general control of private industry has been broadened to an extent unprecedented in this country. This is particularly illustrated in the food producing and distributing industries and in the export trade. Compliance with Government regulations is legally enforceable through a system of revocable licenses. In practice, a difficulty arises in the case of units so large that their production is indispensable. For the grain trade, moreover, the Government has established and finances a corporation which is authorized to buy and sell all the grain produced. As a buyer for its own needs and for those of its Allies, the Government is the main factor in the market for many of the most important staple products.

The opinion has been observable in some quarters that in taking these necessary war measures, which sometimes involved making prices with representatives of a trade acting as a group and sometimes combining a whole industry under Government management, the United States was breaking away from its traditional policy with regard to combinations. It has even been said that the Sherman Act itself was a dead letter.

There is no justification for this view. The Attorney General was consulted by the Government before it made price agreements with various industries covering war supplies. Further in the Lever Act (August 10, 1917), which established executive price-making power for food and fuel, an additional provision was made to the penal laws against combinations. This law provides as follows:

Sec. 4. That it is hereby made unlawful for any person willfully to destroy any necessities for the purpose of enhancing the price or restricting the supply thereof; knowingly to commit waste or willfully to permit preventable deterioration of any necessities in or in connection with their production, manufacture, or distribution; to hoard, as defined in section six of this Act, any necessities; to monopolize or attempt to monopolize, either locally or generally, any necessities; to engage in any discriminatory or unfair or any deceptive or wasteful practice or device, or to make any un-

just or unreasonable rate or charge, in handling or dealing in or with any necessities; to conspire, combine, agree, or arrange with any other person (a) to limit the facilities for transporting, producing, harvesting, manufacturing, supplying, storing, or dealing in any necessities; (b) to restrict the supply of any necessities; (c) to restrict distribution of any necessities; (d) to prevent, limit, or lessen the manufacture or production of any necessities in order to enhance the price thereof; or (e) to exact excessive prices for any necessities; or to aid or abet the doing of any act made unlawful by this section.

It has also been said that the Webb Act was an "ice-breaker" to do away with the Sherman Act. The legal and economic effects of the Webb Act as well as of Section 6 of the Clayton Act, both of which in terms, at least, seem to limit the applicability of the Sherman Act, time alone will make clear, but, if hopes of a repeal of the Sherman Act are based thereon, they apparently do not take account of the fact that certain classes have now got what they want and therefore are not likely to concern themselves much more about the matter.

A Reconstruction Policy and Its Determinants.—The discussion of the policy of "reconstruction" in the United States demands most of all a broad consideration of principles rather than a detached appraisal of particular measures which are planned without relation to fundamental conditions and ultimate aims. Each class or interest in the country will very likely advance propositions in which it has a peculiar and present interest, with little regard to a general policy or the conditions that will have to be met. The consideration of the problem of "concentration and control" must, like all other reconstruction programs, be in agreement with the general policies adopted, whether in international relations or in domestic affairs.

The policy of international reconstruction for the United States as for its Allies depends, in the first place, on the situation when the war ends. Until the German menace is removed the free nations of the world will, of necessity, implacably oppose Germany with every means, military or economic, which they command. When the war ends with the complete removal of the

German menace of militarism, either by a German democratic revolution or by putting such shackles on Germany military and economic power that other nations need no longer fear German political or economic aggression, then reconstruction may be planned on the basis of international justice and amity, which are the best guarantees of future peace. Such a policy might include preventive measures to avoid future economic aggression and to safeguard national economic independence, but it would preclude a program of economic war after the war.

The program of reconstruction as a matter of domestic policy will depend to a great extent on how long the war lasts. It is safe to predict that the longer it lasts the more radical will be the changes afterward, and the countries which have been in the war the longest will probably experience the greatest changes.

The direction of these changes, furthermore, will be of a democratic nature. Whether this has a bolshevist character or not will depend largely on the wisdom, not only of political leaders and the people generally, but also of the capitalists, the labor leaders, and the farmers' organizations.

The condition of Russia, first despotism and then anarchy, could not have existed if there had been, on the one hand, a numerous and intelligent peasant proprietor class, and, on the other hand, a numerous and well-to-do class of small manufacturers, artisans, and shopkeepers.

The most stable and truly democratic states are those in which there is a very wide distribution of wealth in moderate amounts among a large percentage of the population. The system of large land holdings and excessive concentration of industrial capital can be long maintained only by despotic governments. These are commonplaces of historical experience.

The democratic plan of reconstruction requires that there shall be both opportunity and economic rewards for enterprise, industry and thrift, and that the way shall be opened to each, according to his talents, by means of public education and the reasonable regulation of work and wages. This is consistent with the development of large corporations by normal methods of growth in those industries which require them.

Furthermore, except in so far as it benefits the commonwealth through the promotion of popular industry and thrift, the unexploited natural resources of the Nation should not be allowed

to be preëmpted or made the subject of private hoarding or speculation, either to obtain monopolistic gains or the unearned increment in value from social progress.

The International Aspect of Subsidized Industries.—Assuming these as the guiding principles, international arrangements in respect to concentration and control or domestic arrangements affecting international relations should have for their primary purpose the avoidance of all methods or practices which unnecessarily sharpen commercial rivalry or give to it a national stamp. Nations should seek a free and fair field for their respective nationals but should not strive to acquire for them special privileges or to organize them in economic groups to dominate foreign trade. This is the danger of the Webb Act, which can be justified only, if at all, as a defensive measure, and not as the wisest policy of international dealing.

It would be much better if the nations of the world would come to a general agreement on this subject similar to that arrived at under the Brussels Sugar Convention of 1902. Before that international agreement was made the sugar industry in various important producing countries had been nationally organized in cartels, and these had been encouraged and promoted by Government export bounties and high tariff duties. This led to high prices in the domestic markets of the producing countries and to unduly low prices in the open export markets—that is, to dumping. The Brussels convention prohibited such artificial aids and limited customs taxes to a low rate, with the result that the cartels went to pieces and more reasonable prices prevailed both in domestic and export markets. The practicability of such useful agreements depends largely, of course, on the existence of liberal governments which can be relied on for the faithful observance of treaties.

In the same way unfair competition in international trade might be abolished by treaty arrangements, and it is interesting to note that in this matter, also, international agreements have been already established with respect to a limited class of cases—that is, those that relate to the unfair use of trade-marks, etc.

For the enforcement of the Brussels Sugar Convention an international commission or tribunal was established which functioned successfully. Indeed, its decision in 1903 led Austria to

repeal a law which regulated the sugar trade only a few months after its enactment. This again furnishes a precedent for international commissions in the future to administer not only international agreements regarding export combinations but also international agreements regarding unfair competition.

Outlines of a Domestic Policy.—In domestic reconstruction, the guiding principles stated above being followed, it is plain that not only the prohibitions against private monopolistic combinations should not be abolished, but also that these prohibitions should be made more effective by removing as far as possible any economic causes that tend to create such combinations.

Where, as in the railroad business, concentration may have economic advantages so great as to make unity of organization socially desirable, the control of that organization should be completely in the hands of the commonwealth, either through rate regulation or through direct operation. In ordinary industry and trade, however, the maximum social advantage is not in concentration and unitary organization, but rather in the competition of numerous efficient private enterprises. Deprived of monopolistic control of natural resources and of unlawful preferences in transportation and prevented from engaging in unfair competitive methods or monopolistic combinations, there are very few lines of industry in which efficient competitors, whether new or old, will not have a fair chance for successful development.

Destructive competition is more often alleged than found but is most likely to occur where there is an undue acquisition of reserve supplies of natural resources, the result generally of speculative investment rather than the immediate need of industry. Such natural resources as crude oil, coal, iron ore, timber, and water power should never have been allowed to become a subject of speculation, nor of private ownership, except in so far as they were required for specific and immediate exploitation. Indeed, a natural resource like water power should not be alienated at all, but publicly developed and operated, or else leased under the strictest public control as to rates and only for a limited period of time.

The nature of the resource or facility should be considered in each case and utilized accordingly. It would never be argued to-day that rivers should be appropriated to exclusive private

use as a means of transportation, nor, on the other hand, would any one demand a Government monopoly in the use of this facility for transportation. The nature of the facility is of such a character that common use by private enterprise is universally regarded as the most expedient.

A fair consideration, therefore, of the nature of the business, or of the natural resource affected, should decide the method of utilization. In general, private industry with competition, to the exclusion of monopoly or monopolistic combinations, and with obnoxious conglomerations of unrelated industries effectively prohibited; in some cases private monopoly fully controlled by the Government, or direct Government operation; the reacquisition by the commonwealth of important exhaustible natural resources, not needed for immediate private exploitation, and the prevention of monopoly in their use; in cases of inexhaustible natural resources, technically incapable of division or common use, the grant of the use for limited periods and under strict control—these seem to be fair conclusions of the policy of reconstruction which relate to the question of concentration and control.

PART III

**ADJUSTMENTS IN TRADE AND
FINANCE**

XI

THE RAILROAD PROBLEM

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RECENT RAILROAD HISTORY

In considering the reconstruction of the American railroad system after the war it is quite plain that certain factors, at present unknown, are going to loom very large. There are going to be several undetermined x and y values in the equation. For this reason the method of treatment at this time should not, I think, be primarily statistical. Besides, the subject is huge, politically as well as economically. If we can avoid the bewilderment of its details, I think we shall have the best chance of grasping the fundamentals of the railroad problem.

Least of all do we need to spend much time on railroad history. To get the proper environment, however, let us see if we cannot divide American railroad development into its three natural stages. The construction period came first. It was of primary national importance that lines be built, to enable the enormous, undeveloped country to function as a political and economic unit, instead of as a series of isolated communities. The Union Pacific Railroad was laid out with the avowed purpose of tying the East and the West together, at a time when the maintenance of the Union was the chief thought of the best minds of the Nation. The encouragement given to every new project by the governing bodies, local, State, and national, was extreme, and

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the railroads, up to approximately the panic of '93, were built as promising commercial ventures.

Now, it was quite obvious that a railroad system built as a result of speculation would contain the seeds of trouble, and the results were just what might have been anticipated. The roads were overbuilt in the decade prior to 1893. This lack of balance between facilities and the need for them accelerated the collapse of that year and the "long drag" which followed. The way to overcome this difficulty, it was believed, was to reorganize the weak, small units and consolidate them into strong groups with able executive and financial leadership. This, in general, was what happened between the troubles of 1893 and the first Roosevelt administration. This process, however, brought its own problems. Although these difficulties had attended American railroad construction from the earliest days, they became intensified and prominent at a time when the country was subjecting itself to national introspection or "muckraking."

The strong-handed reconstruction of the American railroad system in those days accomplished an immense amount of good. However, it was attended by many instances of improper legislative influence and control, by a good deal of the speculative operations popularly described as "high finance," and by a certain spirit of domination, very much exaggerated in the popular conception, which made it appear that the local community was at the mercy of an absentee management, seeking its own advantage at the expense of the public interest.

By the next decade it became quite plain that the smoke of this conflagration greatly exceeded the flames. Nevertheless, a huge political issue, which is still fresh in the minds of most voters, arose and led directly to the third stage in development—that of exceedingly tight public control of privately owned enterprises. This fact by itself is not especially significant. There have been many instances of beneficent tight public control of private enterprises, both here and abroad. The difficulty lay in the fact that, in the heat of the hour, we managed to separate authority and responsibility. The Interstate Commerce Commission had great authority vested in it, especially with reference to the question of rates or income; it had no responsibility and accepted none with reference to expenditures or costs.

It is, I think, a fundamental of any good organization that authority and responsibility should be lodged under the same roof, and the failure to apply this cardinal principle led unmistakably to the grave dangers and evils that rapidly developed in this third epoch, which only terminated on the twenty-sixth day of December, 1917, by virtue of the President's proclamation. The difficulty was simple and fundamental. The roads were built, equipped, and maintained by private capital. The governmental program of rate making, wage adjusting, and miscellaneous regulation brought about a condition where private capital was no longer adequately protected or remunerated in railroad investments. Private capital thereupon withdrew to a considerable extent from the market, leaving no fund with which extensions or betterments could be made. As the war advanced, and the needs of Government finance became more and more pressing, it was obvious that large issues of maturing obligations could not be provided for or could be met only at excessive cost and in direct competition with war loans.

The Assumption of Railroad Operation by the Government.—On December 26, 1917, the President took possession of all the railroads of the United States, under authority conferred by the Army Appropriation Act of August 29, 1917, and in thus cutting the Gordian knot he imparted a sense of relief and security to the legion of American holders of railroad securities, which was reflected in a sensational overnight advance on the stock exchange. His plan of organization was simple and admirable. He constituted Secretary McAdoo Director General of Railroads, who proceeded at once to work out executive control by the appointment of a number of conspicuously able railroad executives as his operating aides. Authority and responsibility were now lodged together, although it is undoubtedly true that the enactments of March, 1918, by fixing the ultimate rate-making power with the Interstate Commerce Commission instead of with the President, as originally provided, have been a step in the wrong direction. It was further provided that the railroads should be turned back to their owners within twenty-one months after the termination of the war. Our present task is to consider the problems likely to be presented at that time, with due allowance for the unknown factors of the equation.

The Need of Studying Terms of Resumption of Private Operation.—We should not fail to note that the enactment providing for the return of the roads, while constituting a highly important expression of opinion, may not be final. The whole question is political and quite subject to popular review and to campaign propaganda, so that we may be far from the condition of final settlement indicated by the terms of the act. In the meantime, unless some of the fundamental difficulties of the pre-war régime can be anticipated and provided for in the terms of resumption, the problem will not have been solved at all. In other words, if the roads are turned back to their owners with wages much higher, as they doubtless will be, and with no definite understanding as to the method of compensating for the new costs by rate adjustment, there will be no inducement to capital to take up the recurring problems of extension and improvement or of the refinance of maturing obligations. This condition would naturally lead to a further crop of receiverships, followed by persistent agitation for Government ownership, on the ground that private ownership had broken down.

It is going to be worth while, therefore, to visualize this problem before it arrives, because the time to find the answer to it is before the roads are turned back, not afterward. If we make no special provisions for the obvious difficulties, we shall, by the mere force of circumstances, have advanced a long way on the path toward Government ownership.

Difficulties of Government Ownership.—So far the United States has resolutely set its face against Government ownership of the railroads, for reasons which may perhaps be summarized very briefly as follows:

(1) It is believed, and probably correctly, that private ownership is more flexible and more resourceful than Government ownership, partly for competitive reasons and partly because private ownership is at all times the subject of criticism, suggestion, and regulation, whereas Government ownership can be effectively criticised or regulated only at the polls, and this process is not conducive to administrative betterment in detail. In a word, private ownership means better service.

(2) There is genuine fear, perhaps well founded, of building up a huge body of political servants attached to the party in power by the same kind of influences that affect city employees. New York and Philadelphia have afforded the classic instances of this danger, but the application of the principle has not been confined to these two cities.

(3) The "pork barrel" method of balanced appropriations, with local prestige rather than economic utility the test of extensions, improvements, and efficient service, is perhaps the most glaring danger which threatens Government ownership under our political system. A similar danger, although different in terms, is typified by the pension legislation of the last forty years. It would take special legislative courage to resist cumulative wage increases for political purposes.

(4) Although the immediate exchange of governmental obligations, direct or contingent, for the present railroad securities would perhaps effect some legitimate saving in disbursements to the former owners of the properties, our experience with inefficient government would not lead us to expect that the roads would continue to earn as good surpluses under Government ownership as they have earned heretofore. In that case the governmental obligations would prove a burden to the whole body politic unless rates should be increased in proportion to the inefficiency of the new management. The result, in either case, would probably be expensive to the country as compared to the results under private ownership.

(5) From a political standpoint the individual States would be apt to oppose vigorously any arrangement which threatened to deprive them of the very remunerative taxes derived under the present system, although some rearrangement of the taxation plan is desirable. The same comment might be made about State regulations, but many of these are so exasperatingly bad that I cannot think that we shall pass through the present transition period without some clear-sighted attempt to mitigate this evil.²

² One illustration will suffice to show how hampering a State commission can be when it sets its own dignity above the public interest. The Texas & Pacific, in order to conserve coal supply and insure the regular movement of sugar traffic, eliminated nine branch-line passenger trains. The Railroad Commission of Louisiana on November 22, 1917, imposed a fine of \$5,000 for an "arbitrary, willful, deliberate, and flagrant" violation of the rule of the commission which forbids the dis-

Whether or not these reasons are controlling ones, I think they must not be overlooked at the present stage of affairs. It will undoubtedly be possible to avoid Government ownership, or it will be possible to steer for it as a matter of national policy, with a clear and definite effort to minimize the evils mentioned above, but the gravest danger of all would be to stumble into it under the impression that we were doing something else. The present period of temporary Government administration comes very opportunely and gives the Nation a chance to stand aloof and study both the question of future administration and the merits and defects of past administration on rational grounds, without the temptation to enact planless, piecemeal legislation from month to month.

SOME PROBLEMS CALLING FOR TREATMENT

Whatever new problems the future may bring, I think we can definitely assume that at least three major points will have to be decided when, or before, the roads are turned back to their owners. As of first importance, I should list the determination of the kind of regulatory control which the Government is in future to exercise. Second, there is the interrelation of rates to wages and to the changing costs of all the raw materials of operation. Third, and of course dependent on the first two, is the problem of obtaining private capital in sufficient amounts and at proper rates of return, to carry on extensions and betterments of the existing system.

CONCENTRATION OF AUTHORITY AND RESPONSIBILITY

The essence of good regulatory control, in my judgment, is the concentration of authority and responsibility in the same office, as a result of the lack of which most of the railroads' troubles during the last fifteen years have arisen. It is certainly very undesirable that the railroads ever again find themselves in a continuance of a passenger train without the consent of the commission. It was further ordered that the fine should be increased by \$5,000 for every day that the violation of the rule continued. Fortunately the Federal court came to the rescue with a temporary injunction.—"War Administration of the Railways of the United States and Great Britain," by F. H. Dixon and J. H. Parmelee.

situation in which their rates are made by the Interstate Commerce Commission, plus the legislatures and commissions of every State in the Union, without reference to the cost of wage enactments, full-crew laws, demurrage laws, State taxes, and the host of expenses forced upon the roads by coördinate legislative action. If the roads are to be solvent, whoever operates them, the intake and outgo of revenue must be considered as integral parts of the same problem.

Now, to get the problem stated in tangible form for discussion in the forum of public opinion, let us make two primary assumptions—first, that private ownership and operation are better than Government ownership and operation for the purposes of this country; second, that we are committed to a national policy of full regulation. On this basis, how can the regulation best be applied so as to aid and stimulate good railroad operation, while fully protecting the public interest?

The chief difficulty which confronts us at this point is that the railroads are operating under charters granted by the separate States, and that State autonomy, being a cardinal principle in our plan of government, is not a thing that can lightly be brushed aside, although State lines have no real relation whatever to the conduct of the national transportation system. Here again we face the problem of making rates and regulations interdependent, and it is much complicated by the need that the rate-making system shall be national, while operating expenses have been profoundly affected by a regulatory system which is not primarily concerned with the national interest.

Federal incorporation has been suggested as a remedy for this, and it is perhaps the best and most obvious remedy at hand, but, even if it is accomplished, there will remain the problem of getting the States to relinquish certain principles and privileges of local sovereignty which they have long exercised. For this reason, it has always seemed to me that Federal incorporation was only part of the solution and that we must find some additional method of using and harmonizing the regulative machinery already at hand.

Generally speaking, the scheme of railroad regulation in the most advanced European countries has rested on the principle of the full utilization of local bodies in an advisory capacity, while the formulation of definitive regulation, including rate-making,

has proceeded from governmental headquarters.³ It seems reasonable to hope that some such device can be worked out in this country, in spite of the difficulties. It must be worked out with

³In the April, 1915, issue of *The Yale Review*, I summarized the methods by which the leading European countries made use of the principle of the advisory council in connection with a governmental executive office, as follows:

In England the Railway and Canal Commission, a body in many ways analogous to the Interstate Commerce Commission, judges of the reasonableness of rates; but the Board of Trade, which is a branch of the Government, formulated the maximum rate schedules of 1891-1902 for enactment by Parliament and maintains a railway department which deals with privately owned and operated companies like our own and is in every sense a national administrative body. In Germany the *Bundesrat*, or Federal Council, made up of delegates appointed by the various States, maintains the *Reichs-Eisenbahnamt*, an executive office, and deals with matters affecting the Empire as a whole; while the Prussian Minister of Public Works, for example, is practically supreme in the local administration of Prussian railroad matters, working at the head of an elaborate system of councils and directories, so constituted that the advisory and consultative boards are carefully separated from the executive board. The Minister of Public Works manages the State-owned roads and supervises the private-owned ones.

In France, where private companies own much the greater proportion of mileage, the Minister of Public Works is similarly vested with executive authority, supported by four permanent boards or committees dealing with various branches of the service but deriving their authority from the Public Works Office. Italy carefully separates the administrative functions of her Minister of Public Works from the general national control exercised by the Department of Railways, headed by a permanent council of the Railway Administration, which has nine members, whose qualifications are prescribed by statute. Private-owned roads in Italy constitute about 15 per cent of the total.

In short, we find the commission, or consulting council, an essential part of the regulative plan all over Europe; but the tendency is equally plain to unite the specialized functions of these bodies in an executive office which exercises the authority and accepts the responsibility. The Prussian advisory councils, for example, were instituted with the express purpose of considering traffic and rate changes from the combined standpoint of the management and the public, but these councils do not possess the rate-making power; their suggestions are carried up through the district directories to the general advisory council, whose function it is to supply information and advice to the Minister of Public Works. Sometimes this machinery has been over-elaborated, as in France, where the great Commercial Advisory Board, which deals with minor rate changes, is headed by a permanent committee of sixty eight members and works slowly. But provision has everywhere been made to deal with the railroads and their major problems in their entirety; we alone have failed to create a general railroad office with this function, although the need for it is much heightened in this country by our system of State autonomy.

the object of concentrating authority and responsibility. In other words, any regulatory plan adopted in the interest of the public will be weighed and adjusted with reference to the cardinal principle that any new expenses which the carriers have to meet must be compensated by the rates which they receive.

As a tentative plan, suppose that we should adopt national incorporation, and that the State railroad commissions could be induced to act as advisory bodies to a group of regional commissions, representing groups of States. The Government could properly be represented on these regional commissions. The recommendations of the regional bodies could then pass to the Interstate Commerce Commission, which is admirably adapted to conduct investigations and to recommend definitive action. This should not only be based on the regional recommendations but supplemented by its own full records and wide experience. The final decision, however, for the purpose of correlating income and outgo, should undoubtedly rest with a higher authority. It is not in line with the workings of our judicial system that the same body should be the prosecuting attorney, jury, and judge, and yet that is just what we have required of the Interstate Commerce Commission in the past.

The results, under the present system, have been precisely what we should have anticipated. The commission has been an excellent referee on rate cases in the abstract, but it has repeatedly refused to connect its decisions with the extraneous State and congressional legislation affecting wages and operating requirements. Suppose, then, that we relieve it of responsibility which it does not want, by creating a Government railroad director, with powers broad enough to enable him to give the final decision on questions affecting regulation and rates as well, as brought up to him by the regional boards and the Commerce Commission. If he is given a place in the President's cabinet, so much the better, especially if cabinet officers, as true department heads, can be given direct access to Congress for the purpose of formulating and reporting their policies.

These suggestions involve a considerable departure from our existing system of regulations, but I think we should not, for that reason, hesitate to throw them into the field of discussion. The existing system has been evolved piecemeal and has shown its inadequacy to meet the full requirements of the situation, as

illustrated by the fact that over forty thousand miles of railroad in this country were in receivers' hands during 1916. During years of crisis, with the urgent need for new facilities, we have seen new construction drop to the lowest figures since the Civil War, and the private investor, who must pay for the needed improvements, has had no encouragement to take up the task, being quite well aware that our national agency for governing incoming revenue was unwilling to accept responsibility for the expense side of the program.

THE MEASURE OF A FAIR RETURN

For purposes of discussion let us suppose, then, that we arrive at a concentration of authority and responsibility which will assure a rate program adequate to cover the expense program. It is quite obvious that rates on competing lines must be uniform; otherwise, other things being equal, all the traffic will flow over the line with the lowest rates. How are we going to adjust this, in view of the fact that the wide existing differences between the facilities and financial stability of the various roads will bring the necessary result that a living rate for the weak road may provide excessive profits for the strong road in the same territory?

Before the war we were slowly and painfully working along the line of thought that the measure of fair return to the owners of a railroad property was some percentage (not yet fixed) on the investment, as determined by valuation. The Interstate Commerce Commission's Division of Valuation, by an exceedingly slow, laborious, and costly process, has been endeavoring to get at a figure representing "cost of reproduction new," as required by the congressional enactment. Were this information at hand to-day for all the railroads of the country, it would undoubtedly be of value, although by no means a complete solution of the problem, but the work has developed some difficulties of a very fundamental character. Perhaps the foremost of these is the apparent endlessness of the task of compilation, which makes it certain that whatever national plan is adopted to meet the present situation will, from the nature of the case, have to be adopted long before the valuation figures are available. There

are two other formidable difficulties, however, which confront the valuation plan.

One of these concerns the construction of the phrase "cost of reproduction new." Take as an instance the famous Ogden-Lucin cut-off across Great Salt Lake. When the Union Pacific-Central Pacific system was pushed through to the coast, it was beyond the possibilities of the then current finance to undertake this immense and costly project, and a roundabout detour was made, which carried the traffic for many years. According to the construction of the law by the Division of Valuation, the "cost of reproduction new" of the through line could not contemplate the fact that the stockholders had previously provided and then discarded an alternative route. Similarly, the straightening out and rebuilding of all the principal systems has resulted in the abandonment of many thousand miles of earlier construction, unfitted for modern traffic requirements by reason of grades or curvature. There is an obvious and quite unsettled injustice in depriving stockholders of a return on what is called "built-up" reproduction cost, as against the present reproduction cost of the finished product, which could never have been perfected without the earlier and cruder lines of communication.

On the other side of the question, if the commission values the holdings of the New York Central in New York City, or of the Pennsylvania in Philadelphia, at "cost of reproduction new," it is going to arrive at huge figures, enormously in excess of original costs. The valuation rule, in other words, should apply both ways if it is to receive the final sanction of the courts. In one of these cases it is unfair to the stockholders; in the other, to the public.

THE ENGLISH STANDARD OF A FAIR RETURN

The necessity of a quick decision on questions of this kind, under stimulus of war necessity, has evolved another yardstick with which to measure fair return to stockholders. We may describe it as the measure of past performance, and, although crude, it possesses certain definite advantages. A striking instance of this was afforded by the arrangements entered into when Great Britain took over the operation of her railways, for war purposes, in 1914. By primary authority of the Regulation of the

Forces Act of 1871, supplemented by mutual agreement between the Government and the railways, virtually the whole railway system of Great Britain was taken over by the Government on August 5. The Government treasury agreed to pay to the railways, at certain intervals, such sums of money as would bring their net income for the period to the level of the last corresponding period before the outbreak of the war.⁴

Disregarding a temporary modification of this measure, afterward abandoned, the year 1913 was made the yardstick, and the income accruing to the railways was based on the operations of that year. Following somewhat similar procedure, President Wilson took over our own roads on December 28, 1917. The proclamation stated that Director-General McAdoo should "enter upon negotiations with the several companies looking to agreements for just and reasonable compensation for the possession, use, and control of their respective properties on the basis of an annual guaranteed compensation, above accruing depreciation and the maintenance of their properties, equivalent, as nearly as may be, to the average of the net operating income thereof for the three-year period ending June 30, 1917, the results of such negotiations to be reported to me for such action as may be appropriate and lawful."

In both of these instances past performance was used as an immediately available basis of future compensation. The method was admittedly not scientific, but the reaction to it by the public of both countries showed that it was almost universally regarded as being fair and acceptable.

As a possible commentary on this plan, with special reference to its availability as a peace-time measure, the recent action in Canada is, I think, of considerable importance. In April, 1917, the Royal Commission appointed to report on the general problems of transportation in Canada made its report. The commission was composed of Sir Henry Drayton, William M. Acworth, and A. H. Smith, an especially strong personnel. It was peculiarly well qualified to pass on the basic difficulty arising out of the fact that Canadian railways had been somewhat overbuilt with reference to the immediate traffic needs of the country—that one of the roads, the Canadian Pacific, was conspicu-

⁴F. H. Dixon and J. H. Parmelee, "War Administration of the Railways in the United States and Great Britain."

ously strong and solvent, while three others, the Grand Trunk, Grand Trunk Pacific, and Canadian Northern, were conspicuously in need of help, and a fourth, the Intercolonial, had always done especially badly under direct Government ownership and administration.

Smith, in a minority report, recommended that the policy should be straight private ownership and control, after the weak roads had compounded their difficulties with the Government. Drayton and Acworth, in the majority report, recommended, first, that the operations of the Canadian Pacific should be left alone, and then that the weak roads, including the Intercolonial, should be turned over to a board of trustees incorporated by Act of Parliament as the Dominion Railway Company. The Government was to assume responsibility to the Dominion Railway Company for the interest on the existing securities of the properties turned over, and the Board of Railway Commissioners was to have full judicial authority over the company.

THE CANADIAN PROFIT-SHARING PLAN

Here again we see the principle of accepting past performance, or prior status, as a measure of compensation. But in working it out Canada has adopted another principle, which may perhaps have an important bearing on our own problem. On March 15, 1918, a general advance of 15 per cent on Canadian railway rates went into effect. It was recognized that this would work like a gratuitous bonus to the strong Canadian Pacific system. Accordingly a measure was adopted providing, in effect, that the operations of that road for 1917 should be taken as the yardstick, and that all increased revenue after January 1, 1918, accruing to it from the increase in rates should be divided with the Government, which should take, as a special tax, 50 per cent of the excess above the amount necessary to pay 7 per cent on the common stock.

Now, in working out our after-war readjustments of the transportation problem, whatever other questions may arise, we are quite sure to be confronted by the need of fixing some fair basis of adjusting minimum return to investors, especially in the case of the roads which most need developing, and we are also quite sure to have to consider whether or not that minimum return

shall be the maximum. Most of the industrial progress of the world has been made under the policy of reward for successful undertaking. If there is to be no reward, there are not likely to be many chances taken of the kind which have resulted in serving every corner of the country with railroad facilities, often provided far in advance of the traffic that ultimately justified them.

For every hundred square miles of territory New Jersey has, to-day, nearly 31 miles of railroad; Pennsylvania has 26, and Ohio has 22. Oregon, on the other hand, has about $3\frac{1}{4}$ miles, Utah has $2\frac{1}{2}$ miles, and Wyoming has a scant 2 miles. New Jersey, Pennsylvania, and Ohio railroads were built up under the principle of reward for successful endeavor. What shall we say to the inhabitants of the thinly settled States if we so change the rules of the game that the railroad builder in those parts stands to make a maximum of 6 or 7 per cent on his investment if he is successful, and nothing at all if he takes a promoter's chance and builds too far ahead of the traffic? One of the tests of private operation is going to be its courage and resourcefulness in development work. Our future arrangements must reckon with the fact that capital must be tempted, not driven.

Without attempt at formulating a specific plan, it seems to me that the Canadian Pacific plan of dividing with the Government earnings above a specified return to the investor may hold the clue to the solution of our own problem. A similar thing has been done by various municipalities in working out their local transit adjustments, notably in the arrangements between the City of New York and the rapid-transit subways, but with the important difference that municipal capital, or quasi-municipal capital, has in several cases been furnished as a prerequisite to the plan. In adjusting the railroad situation after the war, it is by no means apparent that the Government will have to make capital advances, provided the connection of rates and expenses is made an understood part of a liberal plan.

At the present time, however, American railroads are paying a tax bill of 150 millions per year, and some device whereby tax payments could be increased on a profit-sharing basis would probably be generally acceptable, subject to the difficulty of adjustment between the Federal Government and the States that are now receiving nearly all this tax money. From the broader as-

pects of the case, it is probable that a profit-sharing plan would also work much to the benefit of the roads, as a perpetual demonstration of the importance of keeping rates in line with changing expenditures.

WAGES AND PRICES

The labor question, with special reference to after-war conditions, should receive careful consideration in this connection. Public attention has been focused on the recurring efforts of two or three strong railroad brotherhoods to bring about a higher wage scale, so that at the time of the passage of the Adamson bill a condition very close to a national scandal resulted. By and large, however, it is probably fair to say that the general body of railroad employees have received low rather than high wages, as measured by the general standards of the community. In 1914, as shown by the statistical report of the Interstate Commerce Commission, the average compensation of enginemen (excluding those on roads earning less than \$100,000 per year) was \$5.24 per day, and of conductors \$4.47 per day. Carpenters, however, averaged only \$2.66, station agents \$2.33, and trackmen \$1.59. Since 1892 enginemen's wages had gone up 42 per cent and trackmen's wages only 30 per cent.

Now, it is well established that a great war, by causing a scarcity both of labor and of commodities, forces up both nominal wages and commodity prices. Wages have a more conservative tendency than commodity prices and move more slowly, so that, while the war lasts, the workingman usually finds that he is suffering some loss in his real wage, or power to purchase commodities. After the economic disturbance is over, however, commodities decline faster than nominal wages do, and it is reasonable to expect that some of the advance in real wages will be permanent after the war is over. This is apt to be particularly marked, as Thorold Rogers demonstrated, in the lower grades of labor. In other words, although the great wage advances in all industries during the last two years can not be expected to be permanent after commodity prices fall, it is quite certain that a portion of the advance will remain, acquiring the characteristics of a tradition.

So far as commodity prices are concerned, the excess of war

214 AMERICAN PROBLEMS OF RECONSTRUCTION

demand over supply has produced results familiar to everybody. In the railroad-equipment market two illustrations suffice. A specified type of steel coal car used by the Pennsylvania Railroad in January, 1916, cost \$1,466. The same type of car in February, 1917, cost \$3,742. Mikado locomotives weight 278,000 pounds, purchased by the Illinois Central in February, 1915, cost \$22,205. In February, 1917, similar locomotives were purchased by the same road for \$41,661 each.⁵ It is not to assume a heavy decline in such prices as these after the war but this decline may well be deferred by a number of different factors. Much will depend on the question of immigration and the consequent supply of labor. A good deal may depend upon the extent to which the stronger nations, by perfecting their currency and effectually reducing the gold cover necessary to stabilize that currency, find themselves equipped, after the war with an excessive monetary stock and a consequent high rate of commodity prices.⁶ In any case, we must assume, I think, that the world scarcity of raw materials and manufactured articles alike will postpone for a considerable period the return to lower prices.

This brief consideration of wages and commodity prices constitutes somewhat of a digression, but it will be justified as soon as it serves to sharpen appreciation of the peculiarly vital task which rests with the man who is to make our railroad rates in the first few years after the war. The railroads pay out more

⁵ *The Railway Age*.

⁶ For many years past the effect of the world's great and increasing production of gold has undoubtedly been heightened by growing efficiency in the use of various kinds of credit instruments, tending to make a dollar of gold support, at parity, an increased amount of credit. This double process has clearly been an important factor in the world-wide depreciation of gold and of credit instruments circulating at a parity with gold, in relation to commodities. The price index number of the British Board of Trade may be cited as bearing on this depreciation. Starting with an index number of 100 in the year 1900, the index number for 1910 was 108.8, and for 1914, 117.2. For 1916, and the extraordinary war influences had made themselves fully felt, was 186.5. Now, one of the special and characteristic features of modern finance is the pressure which it brings to bear on every gold dollar or gold sovereign to carry as large a credit load as possible, and it is quite within the bounds of possibility that the world's gold stock may, after the war, maintain at a parity a materially larger amount of credit currency than heretofore. In that case, a sustained rise in commodity prices, or depreciation of gold with respect to commodities, would be indicated.

for two kinds of things, wages and commodities (excluding for the moment the "overhead" of taxes and interest), and the war-time advances in both of these items have been appalling. They have only one thing to sell, and that is service, expressed in rates. The essential connection between outgo and compensating income has never been shown quite so clearly as it has during the last six months, but it is most noteworthy that this connection was never provided by our system of regulation until President Wilson took over the roads.

SUMMARY

Perhaps we may summarize this discussion by saying, first, that private ownership and operation, subject to full regulation, looks like a much more promising ultimate solution of the railroad problem in the United States than Government ownership. On this point, some of the comments made by the Royal Commissioners in Canada have a timely bearing, and I quote the following from the majority report, at random:

"Our personal belief is strong that, in normal circumstances, railway enterprise is a matter best left in private hands, subject to proper regulation by the Government. Were we asked to advise in the case of the railways of the United Kingdom or the United States, which have been constructed by private companies, with money found by private investors, we should give effect to this belief. . . . We know of no country in the world where a democratic state owns and operates its railways in which politics have not injuriously affected the management of the railways and the railways have not had an injurious effect on politics. We do not think Government ownership of the Canadian railways would tend to reduction of rates, but rather in the contrary direction. For the carriage of one ton of freight one mile the Canadian shipper pays at present on the average three-fourths of one cent. On the railways of New South Wales, the oldest and most important Australian State, where the railways have been in Government hands from the outset, the shipper pays well over two cents. . . . Railway history conclusively refutes the idea that state ownership

216 AMERICAN PROBLEMS OF RECONSTRUCTION

promotes railway development. . . . It is certainly the common belief of ninety-nine business men in a hundred, both in America and in England, that the Government gets less value for its money than a private trader."

As a second point, I think that national incorporation is perhaps an early step to straightening out the tangle between State and Federal sovereignty. In working this out, the creation of a cabinet officer with final referee powers on rates and regulations would certainly simplify the problem, and it would accomplish the immense result of concentrating authority and responsibility in the same office.

Finally, if past performance can be used as the standard of minimum return, at least temporarily, in place of valuation, a great deal of time can undoubtedly be saved in the real problem of reinducing private capital to enter the field. It is also, I think, quite clear that the minimum return must not necessarily be the maximum, and I am inclined to think that some form of profit sharing with the Government, in lieu of taxation, or as a supplement to low taxation, offers the best promise along this line. Under such a system of control the evils due to excessive legislation, of which we may cite the anti-pooling law and parts of the Sherman anti-trust law as typical, could probably be eliminated rather easily, because the national interest would be fully protected and would have a stake in the operating results. And with protection, fair treatment, and a chance of profit, I think there would be no doubt that private capital would reënter the field and furnish the great sums necessary for development.

XII

THE DISTRIBUTION OF AGRICULTURAL PRODUCTS AND THE FUNCTION OF PRODUCE EXCHANGES

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INTRODUCTION

Our whole business structure is undergoing kaleidoscopic changes. Some of these are in consonance with sound public policy and with fundamental economic principles. Others are emergency measures. The former will have some likelihood of permanence; the latter will disappear, with the conditions that called them forth. All, however, must be subjected to thoroughgoing scrutiny. It is our duty, while still at war, to make our plans for the peace that must come and, so far as possible, to have ready an efficient, well-planned business organization to deal with the vast and complex problems of the readjustment period. This result cannot be effected by one man or by any group of men but must be the ideal toward which every trade and trade organization will work. The principle of individual initiative must have full operation in this matter, and it would be most unwise to rely solely upon the principle of authority. Unlike those of the other belligerents, both Ally and enemy, many of our commercial operations and institutions have not yet taken on an even relatively stable war aspect. We are still trying a wide variety of experiments, many of them of dubious value and

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218 AMERICAN PROBLEMS OF RECONSTRUCTION

certain to be discarded after more or less cursory trials. This has been the experience of England, France, and Germany and doubtless will be ours.

THE GENERAL PROBLEM OF DISTRIBUTION OF AGRICULTURAL PRODUCTS

Our problems of agricultural distribution are fundamentally different from those of our Allies and the enemy countries. The distance from Portland, Maine, to Portland, Oregon, is three hundred miles greater than that from New York to London and thirteen hundred miles farther than that from London to Constantinople. It is almost fourteen hundred miles from Duluth to New Orleans, and the distance from Liverpool to Rome is less than one hundred miles greater. France and Germany, with a combined population of about 115,000,000 souls, are about equal in size, and each has about two and one-half times the area of Kansas. The problem of transporting crops in these relatively small and homogeneous areas is fundamentally different from our own. Our greatest needs of the present time, if farm products are to be distributed efficiently and at the lowest cost, may be summarized under a relatively small number of headings.

1. *More Extended Organization of Producers.*—While the middleman system has developed to an unusual degree of efficiency in the United States, there is, nevertheless, great need for more thorough organization of farmers for purposes of facilitating the distribution of their crops. The most obvious benefits from such organization are the opportunity for selling in larger quantities, better standardization of grades, higher perfection in packing, and more intelligent placing in the markets through the use of market information and by means of a greater degree of personal representation in the centers of consumption.

2. *Standardization of Grades and Containers.*—The great objects to be accomplished by this means are the elimination of uncertainty in transactions by the use of common and well-understood terms. A buyer is entitled to know what he is to receive, and the seller is equally entitled to the price of the particular quality he produces. In times of plenty the inferior and dam-

aged portion of any crop should be retained as near the farm as possible and either freed from its perishable character by drying or preserving or else fed to animals. This will not only result in economy to the producer but will save transportation space. An excellent case in point has recently been seen. During 1917 the potato growers of the United States produced a stupendous crop of about 442,000,000 bushels. It was impossible between spring and the marketing of new potatoes to consume millions of bushels of the great surplus on hand. It was the part of good business for every one concerned that only the best qualities of the surplus potatoes should go to market in order that the market might not be glutted and in order that the producer might receive the best possible price.

With respect to standard containers, uniformity wherever practicable is desirable. Why have a barrel of one size for flour, another for apples, and still another for potatoes, when it is altogether likely that investigation would prove that a uniform barrel could be used for most products? This applies to lime, cement, sugar, salt, and many other commodities. Uniform containers also provide opportunity for efficient stacking in freight cars, increasing the carrying capacity of the railroads and also minimizing losses in transit.

3. *Conservation of Products During the Course of Transportation and in Storage.*—Much has already been accomplished with respect to both points in this title. Even so recently as ten years ago the number of truly efficient refrigerator cars was relatively small. Already, largely on account of the investigations and demonstrations of the Department of Agriculture, thousands of cars of efficient and well-adapted types have been constructed. Recently the Master Car Builders' Association, utilizing the experimental results of the Department, has agreed upon a standard type of refrigerator car which will combine the best features of existing equipment and the additional points developed through years of experimentation.

Heater cars for the movement of perishable products during winter are also receiving attention. Every winter hundreds of thousands of bushels of potatoes, apples, and other products are taken from our food supply through freezing in transit.

Storages, both common and cold, are being improved through

the efforts of the industry and of the Government. Added storage facilities are being provided on farms and at country shipping stations. This increase in facilities and the simultaneous improvement at the great central markets are progressing in spite of the exactions of the war industries upon our productive resources. The building up of reserve stocks of wheat of suitable quality for long-time storage deserves some attention. Such a step, however, is of greater importance to Great Britain because of her insular location than to a great continental area like the United States.

4. Collection and Dissemination of Authoritative Market Information.—The organized marketing instrumentalities of the country—exchanges, associations, boards of trade—as well as the merchants engaged in the different trades, have in the past provided a large amount of indispensable information which has facilitated the better marketing of products. Many sections of the country, however, and certain products have not fared as well in this respect as the great staples—cotton, wheat, and corn. Many producing industries of the farm are so widely scattered and so unorganized that it is impossible for any large number of producers to be in possession of up-to-the-minute and reliable information as to prices, supply, demand, or the general condition of the markets. This has resulted in a widespread call for the collection and dissemination by the Government of market information, particularly on all the perishable products. During the past four years an extensive service has been developed covering practically all the fruits and vegetables, livestock and meats, dairy products, and, to some extent, grain and hay. Through a system of over fifteen thousand miles of leased telegraph wires, connecting practically all the important markets of the United States, the U. S. Bureau of Markets furnishes daily prices on those perishable food commodities which constitute a very large proportion, possibly as much as 70 per cent, of our diet. In the important centers of commercial production of the several crops itinerant field offices are conducted during the period of movement of the crop from the particular area. Groups of trained men go from one center to another, following the movement of the crop from each center and furnishing to the producers and to the markets information as to the quantity, quality, move-

ment, and destination of the particular product. In the case of strawberries, for example, with the opening of the shipping season in Florida in February information is gathered and disseminated from the producing area. The experts pass over to Louisiana when the great movement from that territory begins. They follow the movement through Tennessee, Arkansas, the Carolinas, and finally into New Jersey and Massachusetts, where the last berries are usually shipped to market in July. In the case of livestock and meats, the great primary markets of the Middle West are advised each morning before the opening of business as to the meat-trade conditions in the great population centers of the East. Formerly this comprehensive information was possessed only by the strongest firms in the markets, particularly the big packing companies. To-day it is likely that even the small commission man has more reliable information than the packers themselves had a few years ago.

5. *Market Inspection of Perishable Products.*—One of the items of appropriation in the war emergency food acts was that authorizing the inspection of perishable products at the great central markets as to quality and condition upon arrival. Such inspection has now been made available in about thirty cities in the United States, so that the shipper from a distant point may consign his product to a commission man or sell it outright subject to inspection on arrival and be sure that he will not be unfairly treated when his goods get to market. If the receiver advises him that the car or other quantity was received in bad order, the shipper may immediately apply to the food products inspector of this Bureau for a disinterested determination of the facts. The inspector's certificate has the value of prima facie evidence in the courts, so that it is of distinct value in the prosecution of any claims growing out of such transactions. Up to the present time this inspection work has been confined to fruits and vegetables, but as rapidly as personnel can be built up and suitable arrangements made it will undoubtedly be extended to butter, eggs, and other products.

6. *Licensing the Agencies of Distribution.*—When Congress called upon the Department of Agriculture to prepare the first draft of the food-control act, one of the important sections writ-

ten into the bill was the one providing for the licensing of the instrumentalities of importation, exportation, manufacture, storage, and distribution of foods. The Bureau of Markets had given this subject special study for several years. Licensing as contemplated in that act was primarily a means of registration, classification, and supervision of the businesses involved in order that their legitimate places and functions might be defined and rules laid down to prevent abuses. It had in mind the adoption of uniform economic practices, the standardization of charges for services, the prevention of discrimination between customers by those who act as agents, and the installation of uniform cost accounting and record systems, including uniform account sales, in order that the relative efficiency of the various agencies might become apparent. It was not intended to interfere with legitimate competition but to bring about a registration which would make possible the definite mobilization of the machinery of distribution, operating largely on the plans and principles and practices already established by the most reliable and successful firms. This licensing is now being carried on by the Food Administration and is an important instrument in the uncovering of undesirable, vicious, and inefficient practices in our food-handling system. It is too soon to prognosticate, but the advantages to the licensee of a knowledge on the part of the public that he is operating under license and that his charges and methods of dealing are supervised will prove to be so valuable that the system will persist when the emergency which hastened its coming into existence has passed.

7. *Improvement in Methods of Retail Distribution.*—The problems of the retailer and of retail distribution are peculiar and difficult. They have not yet been worked out. Consumers have demanded a high degree of service, which is charged for in the sale of the commodity, so that retail prices have generally seemed out of proportion to wholesale prices. More and more, unnecessary service is being dispensed with and the "cash and carry" stores are thriving in such a way as to force other enterprises to like efficiency. The wholesale trades in farm products are relatively sensitive to supply and demand. The retail trades, however, are not. The great need of the present in retail prices is that they shall fluctuate in sympathy with wholesale prices with relative promptness and to the same relative extent. The

channels of retail distribution finally determine the rate of consumption of any product. If retail prices do not fall in the case of an over-supply and so increase consumption, there can be no market for the farm products held in the storages or at the farmer's shipping point. Under the food-control act retail practices are being improved in some respects. The Commercial Economy Board of the Council of National Defense is suggesting changes calculated to reduce the labor requirements of the merchandising trades, in order that a higher proportion of our man power may be relieved for various types of war service. The Bureau of Markets is promoting better distribution and is trying by various means of publicity to bring about a sympathetic fluctuation between wholesale and retail prices, and to encourage the more general utilization of near-by or home-grown products in order that transportation facilities may to that extent be relieved.

Summary.—It seems likely that many of the changes in agricultural distribution brought about by the war are thoroughly sound in the light of public policy and from an economic standpoint. There is strong likelihood, therefore, that many of them will persist. Undoubtedly the organization of producers will proceed more rapidly as well as more efficiently than in the past. There are at present about eleven thousand so-called coöperative enterprises of various kinds in the agricultural industry of the United States, including for the most part creameries, grain elevators, and fruit, vegetable, or livestock shipping associations. Their number can and will be increased.

With reference to standardization, it has proved to be one of the most important stepping stones of progress in every industry, whether steel and ship building or wheat and cotton. Undoubtedly it will prove its value in other trades and industries. The higher the degree of standardization in distribution the smaller the difference in cost between producer and consumer. Not all products lend themselves readily to the standardization of grades, but a degree of standardization compatible with the nature of the product and of the trading therein is no doubt feasible. All work of this character is being done and properly should be done in coöperation with the trades affected.

The collection and dissemination of market information is peculiarly a function to be performed by such a disinterested agency

as the Government. The beneficial results which have been obtained from it are numerous and easily demonstrable. This service will no doubt be permanent.

The food products inspection service also promises to be permanent, Congress having in the present agricultural appropriation bill agreed to a specific appropriation for this work, hitherto done under emergency funds.

Licensing, constructively applied, has great advantages for the licensee, which in a competitive market he will not wish to lose. Therefore it will no doubt persist.

Improvement in retail distribution waits to a degree upon further knowledge and more thoroughgoing education of a very large and heterogeneous number of merchants.

THE FUNCTION OF PRODUCE EXCHANGES

Types.—There are two general types of produce exchanges. In the class generally known as spot exchanges cash transactions are the chief feature of trading. These exchanges furnish a convenient meeting place for all the merchants in given commodities—a place where information bulletins may be displayed or exchanged and where trading may be carried on under fixed rules and under a discipline calculated to protect both the buyer and the seller. This type of exchange is highly specialized, and, generally speaking, only a single product or the derivatives of a single raw product are traded in on its floors. Examples of this type of organization are furnished by the Memphis Cotton Exchange, the New York Produce Exchange, and the San Francisco Wholesale Dairy Produce Exchange. These exchanges are affected by war-time conditions far less than the “future trading” exchanges. In fact, the chief effect upon the spot exchanges is the indirect one which arises through the regulation of the business of individuals composing the membership. They are important instruments for the determination of spot values. They divert production from different areas by the relative attractiveness of their prices as compared with those at other possible markets. If spot cotton prices for equal grades are higher in Augusta than they are in Savannah, the cotton will move to Augusta; if lower, to Savannah.

As to the great future trading markets, the war has resulted

in many changes and uncertainties. Take, for instance, the Liverpool Cotton Association, which, after the New York Cotton Exchange, is the greatest future contract market for cotton in the world. When the war broke out, in 1914, trading on the Liverpool exchange was stopped completely. There was no trading for months. Outstanding contracts, both hedges and straddles, had to be liquidated by means of any settlement it was found possible to agree upon. As England is one of the greatest cotton-using countries in the world and as all of her cotton must come by ocean transport, the need for a hedging market near to the consuming mills was pressing. As time passed on it became increasingly difficult to do business because of the unusual hazards that arose from being deprived of an organized market in which hedges in particular could be executed against purchases or sales of raw material or finished goods. After many months it was decided by the Board of Trade—the British equivalent of our Federal Department of Commerce, though of different legal powers and duties—to permit very limited trading by the removal of certain restrictions. The favorable effect of even this small concession regarding trading was very apparent and resulted, in due course, in the grant of additional privileges, under careful supervision. More recently a still wider latitude of trading has been permitted, with a reported result that so far as necessary hedging is concerned, Liverpool now performs its function with relative normality.

An experience similar to some extent occurred with respect to the New York Cotton Exchange. When war was declared, in August, 1914, the exchange closed immediately. During July the price of the middling grade of cotton ranged between $12\frac{1}{2}$ and $13\frac{1}{4}$ cents a pound. On July 31, when the crash due to the prospect of war came, the price dropped to less than 9 cents, and by October it had receded to 7 cents, in many places in the South to 6 cents, and in some thoroughly authenticated cases in Texas to as low as 5 cents. The exchanges were closed on July 31, 1914, by their own action as a measure of protection. The "buy a bale" movement and the establishment of a cotton loan fund of \$135,000,000 were features of this trying time. The New York and New Orleans exchanges reopened on November 16, 1914. At that time December contracts under the cotton-futures act sold at about 7.75. The gathering of the largest cotton crop in

history, amounting practically to sixteen million bales, was in progress. There was a slight recession in prices during the first two months after the exchanges reopened, amounting to scarcely a cent a pound, a marvelously slight recession considering the volume of the crop. By January, 1915, the price had recovered 2 cents and ruled slightly above 9 cents. During the period of more than three years that has intervened since the reopening of the exchanges they appear to have performed their functions in an economic and satisfactory fashion. On one or two occasions when undue speculation seemed likely to occur the exchange organizations themselves took steps to curb the undesirable propensities. While cotton prices have advanced to more than 30 cents, they have not increased any more in proportion than those of other products. Factors influencing prices have proved fully as effective as in peace times. Rains during April, 1918, generally favorable conditions for planting, and the prospect of a large acreage promptly resulted in a recession of over 4 cents in price.

Functions of Future Exchanges.—It seems desirable briefly to outline the function of future exchanges, their mode of operation, and the changes that have been made in their usual practices during the war, and to indicate to some extent which of these changes appear to have a permanent character. Briefly, the functions of future markets may be stated as follows:

(1) The affording of a constant market for products by means of contracts for future delivery; (2) the providing of a class of traders of expert business judgment and of large means or credit who professionally assume the risks of carrying products over from the season of production to the time of consumption or manufacture, or from year to year, thus relieving the producer, middleman, and user of the attendant risks; (3) the furnishing of a mechanism for the making, registering, and quoting of prices, in which are focused all the facts affecting supply and demand, both present and prospective, and which reflects the will to buy and the will to sell; (4) the regulation of the flow of products from producer to consumer and from market to market, conformably with the market demand; (5) the relative stabilization of prices over longer and shorter periods; (6) the prompt and constant collection and dissemination of information regarding factors affecting quantities produced or expected and factors affect-

ing crop movement, consumption, exportation, etc.; (7) the regulation of consumption by the prompt adjustment of prices to supply and demand; (8) the facilitation of the financing of crop distribution by the banks through the protection or insurance afforded by hedging; (9) the facilitation of trading by providing a common meeting place for representatives of the producer, distributor, and manufacturer.

Volumes could be written regarding the functions, uses, and abuses of future trading. However, it is now generally believed by those who have given the question closest study that the exchanges are a valuable force in the distribution of the crops to which their method of dealing is applicable, and that while abuses are present, nevertheless the desirable course of action is not to destroy the exchanges but to purify them in whatever respects experience may prove necessary.

The Origin and Execution of a Future Contract for Hedging Purposes.—Future contracts in cotton are always executed in units of 100 bales. Many persons are unfamiliar with the operation of future exchanges. A few brief illustrations may be cited.

A local buyer in the interior of the cotton belt in the course of the day's business, we will assume, purchases 100 bales of cotton. He fixes his price during the course of his day's buying at so many points below the ruling market, the difference in price being for the purpose of covering his transportation costs to the central market, his expenses of all kinds, his profits, and such protection as he feels is necessary against slight fluctuation. At the close of the day or the following morning, either directly or through the cotton merchant to whom he sells, he will order a broker on either the New York or New Orleans Cotton Exchange to sell 100 bales of cotton on a future contract for his account. He will select the particular future month that best suits the needs of his business and the time required for delivery of the cotton at a central market. As the change in price from day to day is relatively slight, he is now protected against any fluctuation in the price of his day's purchases. When his spot cotton reaches the market, or when he sells it to a concentrating buyer or cotton merchant, he orders his broker to buy in a contract for the same month in which he had previously sold. Inasmuch as spots and futures fluctuate in relative unison, any change

in the price of his contract will be taken care of in the price of his spots. If spot cotton recedes in price and the local buyer in the end is compelled to sell for less than he paid, his original hedging price will, nevertheless, protect him from loss.

Similarly, to take it up from the other end, the cotton spinner makes a contract for finished goods requiring, we will say, 1,000 bales of cotton. Immediately upon the consummation of the contract or even prior thereto he will instruct his broker to buy in the future market sufficient cotton to cover the transaction. The use of exchanges for transactions of this character represents their highest utility. Instead of increasing speculation they, in effect, reduce it or at least relieve the owner of the spot article of the risks and concentrate them in the hands of the speculative class.

Similar transactions are carried on in wheat and certain other products. The country elevator, at the close of the day's business, protects itself by selling a hedging contract. The flour miller makes a contract with a merchant baker for 10,000 barrels of flour and immediately orders the execution of a contract in the future market for 45,000 or 50,000 bushels of wheat in order that when the time for grinding the flour comes he may have the wheat at the price contemplated when he made his flour sale.

Modification of Practices on Future Exchanges.—A number of changes may be cited that have been introduced either through the voluntary action of the future trading organizations or at the suggestion of the Government. Section 13 of the food-control law² conferred power of regulation over such exchanges as deal in raw materials of food. Trading in wheat was wholly prohibited; trading in corn was restricted to certain months; fixed maximum settling prices were prescribed in certain cases. In the case of wheat, before trading was stopped altogether short selling was permitted, but all buying except such as arose out of hedge transactions was prohibited. The effect of this was temporarily to depress the market, though later, necessarily, the man who sold short had to buy in his contract or deliver the spot article.

² Of August 10, 1917; 65th Congress, 1st sess., Public No. 41.

Limitations of Fluctuation to a Certain Number of Cents per Day.—This restriction on price movements was carried out, particularly in the case of cotton, with a view to providing against skyrocketing, which sometimes takes place in a sensitive market. It was aimed, however, quite as much at preventing an undue decline as an undue rise in price.

Another important undertaking was the supervision of the open accounts of all trading firms and the limitation of the amount of open trades that they might carry on their books. This plan is now being applied particularly to future trading in corn and oats. It involves investing the board of trade, chamber of commerce, exchange, or other association with complete power to examine persons or their books, papers, and records, in order to determine the extent and nature of all their open contracts in grain and provisions, held either for themselves or for their customers. The executive officers charged with the duty are in full control over the trading of members, their deliveries, and their adjustments of contracts, and they may also determine the nature of the contracts and require a specification of the purposes for which they were entered into. It is stated in the grain trade that this relaxation has already produced a freer movement of grain from country shipping points to market. As it has been in operation only a short time, it is too soon to determine its full effect.

Changes That May Have Permanent Value, and Certain Other Suggestions.—In times of stress the limitation or at least the supervision of the amount of business permitted to be done by outsiders is undoubtedly warranted. Scarcity in a product practically always results in speculation in it. "Fliers" by persons not informed regarding a trade nor engaged in it at such times may have an exceedingly dubious effect.

Most exchanges, both stock and produce, have a coördinate clearing-house organization through which all trades are cleared. Some exchanges are still lacking this very important instrumentality. The proved benefits of the clearing-house system appear to admit of no doubt that they should be a part of every exchange. They furnish the most practical means of supervision.

The limitation of the extent of fluctuation that may take place during any day appears to have a certain permanent value. When

Germany declared her unrestricted submarine warfare against the shipping of the United States a disastrous drop in the price of cotton occurred. During the closing hour on January 31, 1917, the price broke from about 17 to 14 cents a pound. On February 1 the market opened at 14. In ten minutes it was sold down to the low point of the day, 12.50 cents. At 10:30 a. m. it had risen to the high point of the day, 17.25. In less than half an hour after this the price settled down to a level under 16 cents, where it remained relatively steady. No concomitant change in the real value of cotton took place, and spot transactions did not follow the future market, or at least to only a very slight extent. Undue losses and hardships unwarranted by the facts occurred. A proper limitation upon fluctuation will avoid such occurrences.

Straddling between markets, both domestic and foreign, has not been discussed in this paper. It should nevertheless receive careful scrutiny with a view to determining the extent to which arbitrage transactions may or do constitute manipulation. In the case of grain straddles between domestic markets, terminal elevator control is an important factor in this problem.

Exchanges must provide themselves with adequate power to deal with "corners" or "squeezes" undertaken for purposes of market manipulation. Farm producers generally have not familiarized themselves with the function and operation of future exchanges, and many of them are opposed to their operation. There is a wide variety of opinion, most of it perfectly honest, as to the usefulness of these organizations. The experience of the cotton producer, who saw his product lose fully half its value while the exchanges were closed and noted a constant improvement as soon as they reopened, indicates the usefulness of these bodies. Information regarding them should be disseminated in understandable terms. Much of the trouble is due to the highly technical character of the transactions and to the lack of reliable information. It is to be said that the exchanges themselves have rather taken the attitude that it was not worth while to educate the producer.

Producers' organizations feel that they are unjustly denied membership in these bodies. On the other hand, the responsible officers of the exchanges maintain that this is not the case, as any one who is willing to subscribe to their rules and pay the costs and

DISTRIBUTION OF AGRICULTURAL PRODUCTS 231

who has a sufficient credit standing can join. This much seems true with reference to their use and efficiency: the standardizable products traded in upon future exchanges are marketed at a smaller margin between producer and consumer than any other farm products. During the reconstruction period the Nation will need to be efficient in every possible way. It is most desirable that all interested persons should give earnest thought to those steps that may be taken to improve the useful instrumentalities of distribution.

XIII

THE SHIPPING PROBLEM

BY EMORY R. JOHNSON¹

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The Dual Nature of the Shipping Problem.—The problems of American shipping are matters of both the war and the reconstruction periods. For the moment, and possibly for some years to come, the problems of war will be the only ones to which the people of the United States may justly give first consideration. Indeed, until Germany is defeated in her attempt to destroy the civilization of the world and to substitute ruthless might in place of justice as the force controlling the relations of men and nations, it seems out of place to consider what will happen when, with the war ended, the nations of the world can take up the work of rebuilding industries and trade and of reestablishing the fabric of international law. Nevertheless, it may be a patriotic duty to look ahead of the present period of strife and trial to the days when the United States, Great Britain and other maritime nations will again take up the task of using the high seas to bind together the nations of the world in friendly economic intercourse.

When the several nations resume the peaceful pursuit of trade, there will, of course, be competition, and each country may be expected to make the best use of its opportunities and its re-

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sources. Fortunately for the United States there is every reason to expect that its competition with the country which has long been paramount upon the sea will be tempered to a friendly rivalry, and that coöperation will, in a large measure, take the place of competition in the work of rebuilding the world's international trade. This should be the policy of the United States, which, instead of trying to supplant Great Britain upon the seas, even if that were possible, should strive to work with her and other nations whose purposes are to help the world in providing the ships and other facilities required for the maintenance of active commercial intercourse among the nations of the world.

Some Recent History.—The Civil War hastened the decline of the American merchant marine upon the high seas and gave added strength to the forces which for more than half a century kept the total of American deep-sea tonnage at a low figure. But the present war promises to have exactly the opposite influence. Mighty forces are now operating which will almost certainly create an American marine second in strength only to that of the United Kingdom. For a quarter of a century preceding the opening of the European war the total of American shipping registered for the foreign trade did not much exceed 1,000,000 tons gross. The outbreak of the war in 1914 was soon followed by such a demand for ocean shipping that vessels were diverted from the coastwise services, increasing the shipping of the United States in the foreign trade to 2,000,000 tons gross. There was, however, but little increase in the total tonnage of the American merchant marine, and the shortage of tonnage under the American flag continued to become more acute until some time after the United States entered the war. It seems now, in 1918, that the deep-sea tonnage under the American flag will quite certainly exceed 5,000,000 tons gross in 1919, and that it may rise to 8,000,000 or 10,000,000 tons gross in 1920. Should the war continue beyond 1920, as seems probable, we may look forward to a continued increase in the tonnage under the American flag. Should these predictions be realized, the tonnage under the American flag will eventually be not appreciably less than that under the British flag.

To create this vast tonnage in three years, scores of shipyards have been established and the yards that were in existence be-

fore the United States entered the war have been increased in capacity and in speed of output. To defeat the attempts of piratical U-boats to destroy the world's shipping and to cripple the transportation facilities indispensable to the successful conduct of maritime operations by the United States and the Allies, the people of the United States are devoting their capital and their energy to the erection of shipyards and to the construction of vessels. The country has been slow in starting this great work, and humiliating delays have occurred, but at last the great forces of the Nation are being applied effectively to the creation of a great merchant marine. The longer the war lasts the greater will be the tonnage of merchant shipping under the flag of the United States.

A Seafaring Bent.—When we look beyond the period of the war we must be mindful of certain obstinate facts, one of which is that permanent success upon the sea requires more than the initial possession of a large tonnage of ships. We can unquestionably create and man the vessels as a military necessity and operate them successfully when competition with other maritime nations is absent and when men devote themselves to shipping for patriotic as well as for economic reasons; but after peace has been restored and men feel free to devote themselves to pursuits for which they have greater aptitude and toward which they are more disposed by temperament and training, it may be difficult economically and successfully to man the vast fleet of merchant ships that will fly the American flag. The United States Shipping Board has already taken measures intended to prepare and dispose men to follow the sea.

During the first half of the nineteenth century and through the two preceding centuries there was no question as to the zeal and skill of the American people in the operation of vessels; but during the second half of the nineteenth century it was apparent that the British, Norwegians, Dutch, and men of other nations were showing greater success in maritime pursuits than the American people. The causes of the trouble were not psychological but economic. The trouble presumably was in the economic situation and not in the nature of men. The fact remains, however, that the people of other nations put forth greater efforts and obtained more successful results in ocean transportation than

the people of the United States. It will not do to forget or ignore the experience of the fifty years preceding the present war, and in planning for the future of American shipping we should resolutely set about to prepare ourselves for a better showing on the sea than we have made during the last half century. There must be developed in the people of the United States, at least in a goodly percentage of them, a seafaring bent such as the people of New England had in the colonial period and for three-quarters of a century after the National Government was established. If this seafaring bent can be given to the people of the United States, capital and men will seek the sea just as the money and men of England, Norway, and other European countries take kindly to maritime industries and pursuits.

The Relation of Shipping to Our Post Bellum Commerce.—The problems just stated are much in the minds of the people of the United States at the present time, and not for reasons that are altogether selfish. It is the hope of every patriotic man that the United States may succeed in a material sense and that its economic activities may be profitable; but this hope is, I believe, inspired partly and increasingly by the conviction that the success of the United States, like that of England, France, and other right-minded countries, will mean the strengthening of the forces which bring nations together in harmonious relationship and unite their efforts for the firm establishment of the ideals which underlie a civilization that makes for human welfare. If the United States is a country of high ideals the wider its future international intercourse, the farther its trade extends, the greater will be its influence for good and the more assistance it can give to the other nations with like ideals in advancing the well-being of the world.

It is impossible to consider the future of American shipping without discussing it in relation to the future of American commerce. Ships are a trade facility, and the demand for ships under the American flag must, in the long run, depend upon the extent of the international trade of the American people. The effects of the war upon the commerce of the United States, while not so revolutionary as upon shipping, have been phenomenal. The war has temporarily stopped a large part of the normal foreign trade of all the countries of the world, including the United States.

Some countries are excluded from foreign trade by sea, while practically all nations are obliged to limit international exchanges to restricted lists of articles. The production of many articles is entirely suspended, and the output of many others has been restricted in order that foodstuffs, munitions, and military supplies may be produced and manufactured in increased quantities for consumption at home and for shipment abroad. Industry and international trade are being temporarily forced out of their natural lines, and this diversion will continue at an increasing rate until the war is won.

The Effect of the War on Trade.—The effect of the devotion of industry and trade to the business of war has been to give to the United States, which is situated outside the theater of real warfare, a much larger place than it formerly had in the trade of Central and South America and a somewhat greater share than it formerly possessed of the commerce of Asia and Africa. The trade of the United States with these continents as well as with Europe is, however, limited both by inadequate shipping facilities and by the necessity of restricting international exchanges to the commodities that are essential to the industries connected with providing the means of fighting the war. As shipping facilities increase with the progress of the war, the foreign trade of the United States may be expected to exceed even the present large figures, but the range of articles exchanged must necessarily be limited with increasing rigor to those which are needed by the war industries.

It is quite certain that the United States at the end of the war will have a foreign commerce of far greater volume than its international trade in the past; and it is also probable that the United States, when the war is over, will be less crippled financially than the European countries which are involved in the great struggle. Under these conditions the United States ought to be able successfully to compete with other countries in maintaining and developing foreign trade. It is, however, well to be frank with ourselves and to recognize the fact that the people of the United States have not shown exceptional ability in foreign trade during the past fifty years. As compared with the results attained by several other countries, the showing made by the United States in foreign commerce has not been flattering to na-

tional pride. Foreign trade has not been taken very seriously by the American people as a whole. Indeed, it has not been necessary for them to take it seriously. With a country of continental proportions, rich internal resources to develop, and abundant opportunities within the country for the investment of capital and for the application of labor to industry, the people of the United States have not had a strong incentive to develop foreign trade and to build up ocean shipping, such as has stimulated the people of England, Denmark, Holland, and Norway.

Will the incentive be present in the future? Probably it will. Economic conditions in the United States after the war will tend to create a keen and widespread interest in foreign trade. The war has keyed up production in many lines and has aroused productive energy to unwonted effort. There will be a large surplus output seeking foreign outlet, and for a while at least there will be a strong foreign demand. To the extent of their ability to purchase upon credit European countries will be eager to secure the materials and machinery needed for reestablishing their industries and for repairing the waste of war. This period of exceptional foreign demand will be temporary, but it will at least help tide over the inevitable economic readjustment that must be made in the United States, as in other countries, when the industries turn from the support of war to the conduct of normal business enterprises. The United States will quite certainly have a large foreign trade for a limited period after the war; and it is probable that the increase in the scope and volume of the country's foreign commerce will be permanent.

Direct Trade and Short Routes.—The large merchant marine which the people of the United States are certain to possess at the end of the war will be of great assistance to the country in holding and developing its foreign commerce. Ships are the tools of trade, and their possession in abundance makes trade development easier and far more certain. This will be particularly true as regards the commerce of the United States with South American countries. In times past the trade of the United States with the countries of South America has had only a meager development. It has been especially difficult for American producers and exporters to acquire a large place in the com-

merce of South America. The cause has been, by no means wholly but in large part, the lack of direct shipping facilities. European manufacturers and merchants have had far superior facilities for shipment to and from South America, and this has put a handicap upon the commerce between the United States and American lands to the south. In fact, a considerable share of the trade of the United States with South America, as well as with the Orient, has been carried on via London and even via Hamburg.

The war has made direct trading between the United States and the Orient necessary, and possibly it has created conditions which may prevent a return to the practice of trading via London and Hamburg. With a large tonnage of ships under the American flag, there ought to be no great difficulty in establishing and maintaining enough direct lines between the United States and South America to take care of the trade. Moreover, American banks seem to be successfully handling international exchanges; and, while we cannot be very certain as to what will happen to these international banking arrangements when the war is over, it may possibly not be necessary to any considerable extent to arrange credits or settle accounts between the United States and South America by employing the services of European banks.

Interest in Maritime Affairs Needed.—The one thing needed to insure to the people of the United States future success in foreign trade and in ocean shipping is the creation of a keen interest in maritime industries and pursuits. There must be a trading and seafaring bent. Will this be acquired? The fact that the people of the United States, at the end of the war, will have an extensive foreign commerce, a large merchant fleet, and a corresponding number of men who have experienced life at sea will tend to create in the public as a whole an attitude of mind favorable to shipping and foreign trade. It will tend to make of the United States a maritime nation with strong international interests. The psychological motives of maritime effort will, presumably, have been strengthened, and the country will be disposed to encourage shipping by favorable legislation and by other necessary means.

Wanted—A National Shipping Policy.—But this will not come about automatically and inevitably. There is need of formulating and following a definite national shipping policy. However cordial international relations may be in the future and however earnest may be the efforts to coöperate, there will be competition among friendly maritime nations for the carrying trade as well as for the foreign commerce of the world; and that competition will be keen even during the quarter century following the present war, while the memories of common sacrifice draw together the well-meaning nations of the world. The race for success in shipping and commerce will be won by those who make the most of their powers and their opportunities.

Without going into details concerning the legislation necessary to the formulation of a national shipping policy, it may be stated that existing laws should be so amended and future statutes so framed as not to restrict or avoidably to burden the acquisition, registration, and operation of vessels. Since the Civil War shipping legislation in the United States has, in a large measure, been subordinated to the policy of promoting the internal development of the country. It is only since the Spanish-American war that the country has again consciously thought of foreign trade as something in and of itself desirable, and it has only been during the past decade that the country has seemed consciously to realize that it was important to have a large merchant marine under the American flag. Whatever may have been the past views of the country regarding the necessity for ships, the present war has convinced everybody that the United States must, in the future, have a large merchant marine. Liberal shipping legislation will be far easier to enact in the future than it has been in the past.

The same may be said regarding laws concerning the shipbuilding industry. For commercial and naval reasons the country must take measures to continue in profitable existence the more important shipyards that are being constructed to meet temporary conditions created by the war. It is, of course, not to be expected, nor is it desirable, that all the shipyards established during the war shall be continued when peace is restored; but, having been built up suddenly to provide ships for the war, the shipyards in this country will meet with a disastrous crisis when

the war ends, unless measures are taken to ward off the catastrophe.

It is certain that the country will insist upon the maintenance of a large and technically progressive navy for as long a period after the war ends as it will be necessary to protect the country and to help safeguard the world against the recurrence of an attempt upon the part of any ruthless and lawless power to overrun defenseless nations. The maintenance of a large navy will be of great help to the shipbuilding industries of the United States and indirectly to the maritime industries and international trade of the country.

To help solve the problem of providing the personnel for the navy and for the merchant marine, training should be provided for officers and seamen and the other classes of men required upon ships. The United States Shipping Board, the Department of Commerce, the large universities, the trade schools throughout the country, elementary as well as secondary, must provide definite training of men for the sea. The technical schools must add to their studies in engineering and industry courses having to do with seafaring pursuits. It should be the conscious purpose and the continuous effort of the country to prepare a large body of men for effective management of naval and merchant vessels. What the Shipping Board is now doing to train men for its rapidly growing fleet, built to meet the needs created by the war, shows how men can be prepared for the merchant marine. The education of men for the sea must not stop with the war.

Private Encouragement of Shipping.—Business men have a duty and an opportunity to render the country a great service. Bankers, manufacturers, exporters, importers, and insurance men, through their several organizations, should seek constantly to further measures that will strengthen the shipping interests of the country. Success in manufacturing enterprises and trade depends so largely upon success in ocean shipping that there are ample reasons why the organizations of different classes of business men should actively interest themselves in shipping questions.

Shipowners should especially be encouraged to organize the service of ocean transportation in the most economical and efficient manner. By the shipping act of September 7, 1916, conferences and traffic agreements of ocean carriers, under Government super-

vision, are permitted. Previously they had been under the ban of the law in this country. Presumably shipowners will make full use of their opportunity to develop their business by organized effort, and in doing so they will doubtless receive the support of public sentiment.

All departments of the Government having to do with merchant shipping and also the navy and the various kinds of schools that train men for the sea should provide aquatic sports and arrange contests by which the men may show their skill and proficiency and may acquire an enthusiasm for life on ships and at sea. These efforts can possibly be strengthened and greatly assisted by shipowners' organizations. Owners of vessels are the most directly interested in securing an adequate number of trained, enthusiastic men, and they may well make a point of trying to create an esprit de corps on the part of the men who are in or are training for the merchant marine or the navy.

Private Enterprise and Government Function.—In developing a national shipping policy Government regulation is not to be discarded or neglected. The business of ocean transportation should be wisely regulated with a view to preventing abuses and to maintaining fair treatment as among shippers and localities. This regulation, however, should be constructive as well as corrective in aim and purpose. The United States Shipping Board should be a strong and helpful agency after the war, as it is now. Eventually its relations to the shipping industry will be as vital as the relation of the Interstate Commerce Commission to railroad transportation.

For the period of the war it will be necessary for the Government to engage extensively in the construction of ships. It is also necessary for the Government to control shipping and to operate a large number of vessels. As a war measure the Government's participation in the shipping business is not only desirable but essential. Whether it is wise for the Government to engage in the construction and operation of vessels in times of peace is questionable. It may possibly have been justifiable for the United States to provide for the Government construction of ships before the country entered upon the present war. At the time of the enactment of the present shipping act the American merchant marine in the foreign trade was at low ebb; there

was urgent need for a larger tonnage; and Congress thought it wise to authorize the Government to construct, acquire, and operate vessels.

In the long run, however, the maritime success of any country must come from private initiative and not from Government activity. Indeed, the shipping act provides for the retirement of the United States from the shipping industry within five years after the close of the war. This principle should be adhered to, and the permanent policy adopted by the American people for the development of shipping should aim to make the business profitable to private capital and attractive to the great body of ambitious young men who are seeking a business to which they may devote their best efforts and in which they may achieve success in friendly rivalry with other men of affairs. The Government should regulate but not supplant private business in the shipping industry.

XIV

THE FREE PORT AS AN INSTRUMENT OF WORLD TRADE

By EDWIN J. CLAPP ¹

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Report of the New York and New Jersey Port and
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Free Port Is Not Free Trade.—In considering the “free port” it is necessary first to disabuse the mind of the idea that the institution has anything to do with the policies of protection or free trade. If there were twenty free ports in the United States, it could still retain its protective-tariff policy. But the higher our protective tariff the more desirable are free ports if we wish to engage heavily in foreign trade and become a market for the raw materials of the world. England needs no free port or free zones, because she is a free-trade country and her regular ports have the characteristics which, in a protective-tariff country like the United States or Germany, must be imparted by the establishment of free ports.

Definition and Advantages of Free Ports.—A free port is a free-trade island within a country that maintains a customs tariff. If a free-port area were installed in the port district of New York, Boston, or San Francisco, the free port would be considered, by the United States customs authorities, as foreign territory. Goods coming in from foreign countries would enter the free port without the details of custom-house inspection. If such goods were transshipped or reexported to a foreign coun-

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try, the United States customs officials would never know of them. Goods thus kept within the free port could be mixed, repacked, blended, or branded, without any customs interference, for in the meaning of the tariff law they would not be within the United States. Within the free-port area factories could be located to manufacture imported raw materials, otherwise dutiable, and export the product without being subject to the difficulties and delays of collecting "drawbacks" or refunded duties from the United States Government. But just as soon as any goods go inland to any point in the United States from the free-port area they become subject to the regular duties, whether on raw materials or on finished products.

It will be seen at once that the free port is interesting from several points of view. It permits the rapid handling of ships in port, without the delays and harassments inevitably connected with the supervision of the Customs Department. Further, it gives the greatest possible freedom for the handling, mixing, and repacking of goods which are consigned to the free port but whose destination, whether inland or foreign, has not yet been determined. It also greatly facilitates the business of transshipment and reexportation. Finally, it provides ideal locations for industrial establishments working with imported raw materials that are normally subject to duty. The essence of the free port's advantage is the legal fiction of its foreign location, the fact that it is a free-trade island in a sea of protectionism. As Frederick Howe says, "It is an unobstructed counter across which goods can be exchanged and transshipped to other countries."

A Free Port Described.—The idea of the free port is best understood if we describe one. The agitation for free ports in the United States originated about the year 1911, after we "discovered" the free port of Hamburg, which had been in existence since 1882. Most of the proposals for an American free port are based upon that institution at the port of Hamburg. The advantages that we hope to gain are those which have already been exemplified in this German port. Therefore it is worth while to tell, briefly, what the free port of Hamburg is. Opposite is reproduced a map of Hamburg, with a red line showing the great portions of the harbor included within the free-port district.

When in 1871 the German Empire and the German Customs Union were consolidated, Hamburg and Bremen entered the Empire only upon condition that they should remain outside of the Customs Union. That was because the Hansa cities in those days were more interested in transshipment and reëxportation business with the Baltic than in business with the German hinterland itself. Hamburg did not want to enter the Customs Union in such a way as to hamper it in dealing with its best customers. But in the course of the next ten years the German hinterland developed enormously, particularly in the iron and textile industries. For traffic from these industries Hamburg was dependent upon the Prussian State Railways, whose tariffs, Bismarck intimated, would not be favorable to Hamburg if she kept out of the Customs Union any longer. So Hamburg joined it in 1882, making what subsequently proved a good bargain with the Empire.

The State of Hamburg, practically identical with the city of Hamburg, with 275,000 inhabitants, entered the Customs Union. Its harbor proper was to remain outside the Union and was to be rebuilt and isolated from the rest of the city. The Empire agreed to contribute 40,000,000 marks toward the construction of this free port. The remaining cost—about 150,000,000 marks—has been borne by Hamburg.

At this time the port of Hamburg consisted mainly of two great basins, the Sandtorhafen and the Grasbrookhafen, built into a peninsula on the right (cityward) bank of the main Elbe stream. The whole peninsula, as well as the island of Kehr-wieder, between it and the city, was preëmpted as the free port. As no one was allowed to live there, 1,000 property owners were expropriated and 24,000 people were evicted. In this right-bank peninsula one more large basin was constructed. Twelve hundred acres of marsh land were purchased on the left bank of the river, and a great succession of new basins erected there.

Equipment of Hamburg Free Port.—The free port consists of a large number of basins, lined by quay walls, alongside which steamers can lie and be discharged by cranes into freight sheds, amply supplied with railroad connections. In the wide basins mooring posts provide anchorage for ships handling cargo in the stream. There are warehouses directly on the water side. Be-

tween the various left-bank basins are located shipyards and numerous exporting industries. The whole free port, therefore, considered by the Customs Department as foreign territory, includes land on either bank of the Elbe and the main river itself for a considerable distance. It is surrounded by a customs line, which is guarded by customs officials. On land the line is designated by high iron palisades; along the river it is a floating palisade; where it crosses the river it is an imaginary line guarded at either end by customs men. At the land and water limits of the free port are provided customs booths, where goods must pay duty when they enter the Empire.

Reexportation Facilitated. The first advantage of the Hamburg free port is in facilitating reexportation; indeed, the importance of the reexportation trade is what, before all else, led to its creation. Merchandise can be brought free of duty into the free port, stored in its warehouses, repacked or mixed, and then, as conditions of the market dictate, sent across the customs line into Germany or shipped to Scandinavia and the Baltic. In the free port foreign merchants can maintain sample and consignment stocks. Bonded warehouses do not offer the same opportunity for unhindered movement of merchandise in a port; everything must be done under the annoying control of customs men. In Hamburg there is no need of counting and verifying pieces when a reexportation is made. A bonded warehouse cannot offer the same facilities for various manipulations necessary to prepare goods for the consumer, such as cutting wines and mixing coffees.

Export Industries in Free Port.—The privilege of manufacturing in its free port, which Hamburg alone of all German ports possesses, is one that has proved of less benefit than was expected. Its advantage is of course that it allows exporting and outfitting industries to get their foreign raw material duty-free. This advantage has been partly overcome by the system of drawbacks since introduced and applied to the manufactures in the Customs Union. The disadvantage under which all industries in the free port labor is that, if they wish to sell in Germany, they have to pay on their products crossing the customs line the high duty on manufactured articles, while their inland competitors have had to pay only a low duty on the corresponding raw

materials. This disadvantage has become more pronounced as the home market has come to preponderate over the foreign. And yet there is a large demand for manufacturing space within the free port. When, a few years ago, a new area was to be added to the district, there were one hundred applications for manufacturing sites. In normal times about fifteen thousand men are employed in shipyards in the free port, and approximately five thousand in other industries. The chief types of industry are those catering to the building, outfitting, and provisioning of ships, such as shipyards, boiler shops, machine and repair shops, and biscuit factories. Or they represent industries largely interested in exporting, such as rice mills and oil mills.

Rapid Handling of Ships.—But perhaps the chief advantage of the free port lies in the opportunities it offers for the rapid, frictionless discharging of ships with dutiable goods, whether destined for reëxportation or for shipment inland. As Hamburg lies eighty-five miles from the sea, precautions must be taken to prevent goods from being landed on the way up. The Hamburg pilot, who must be taken aboard when the vessel enters the Elbe, is an official customs inspector. Under his guidance the vessel comes up the river at any hour of the day or night and passes to her berth in the free port, unmolested by customs officers. There are no summary or detailed declarations of dutiable goods to be made, no customs officers to be taken on board, with the explanations and delay incident to their presence. The ship discharges by day or night, with no official limitation on her hours. When she is ready her inspector-pilot takes her out to sea; no officer of the customs has been near her. The procedure offers the least conceivable hindrance to the free movement of a ship.

The Effect on Trade.—The trade statistics of the German Empire for Hamburg are such that it is not possible to tell how much of Hamburg's trade consists of reëxportation. The best estimates are that 20 per cent of her exports are reëxports. In the last peace year, 1913, Hamburg exported goods of a value of \$1,000,000,000. Her reëxportation, therefore, amounted to approximately \$200,000,000. This is a very large sum and indicates a tremendous growth in the preceding decade. It is an

advance made in the face of the very formidable trade monopoly which has been London's prerogative.

Copenhagen also has a free port. It was built by a private company in the early nineties. In the last ten years the growth of traffic in the Copenhagen free-port district has been 100 per cent; the growth in the remaining portions of the Copenhagen harbor has been 4 per cent. This relative increase is an interesting commentary on the attraction which the free port exercises upon trade.

The British Problem.—In England, as we have already seen, there is no demand for free ports, because the whole country is a free-trade country. However, there is a strong possibility that when the war is over there will be a British tariff operating against outside nations, with preference, perhaps free trade, for the Dominions. Already British experts are pointing out that, if this comes to pass, Great Britain will need a free-port district like that of Hamburg if she is to retain her ancient supremacy as the emporium of the world's trade.

London Consignment Market.—Not many people have a real conception of London as a focal and distributing point for the world's trade. The foundation for this magnificent position is the London consignment market. Raw materials from all over the world can be shipped, unsold, to London. Its merchants receive these consignments of rubber, Egyptian cotton, wool, ivory, mahogany, jute, hemp, sugar, coffee, and a hundred other commodities. They credit the shipper with, say, 80 per cent of the present value of his produce and hand him the balance when the sale is made. For financing these transactions they borrow money from the London banks.

Other nations then turn to buy rubber, cotton, wool, coffee, and ivory in the London market. The London merchants and consignors can guarantee the quality of the goods sold. Sometimes the buyer prefers to purchase from a London merchant giving this guarantee, rather than from an irresponsible or unknown seller in the land where the goods originated. Whoever buys from London is sure of rapid delivery and cheap freight rates. He is sure of rapid delivery because of the network of ocean services radiating from England. He is sure of cheap freight rates:

all outward freights from England are low because there is more tonnage inbound to England (foodstuffs and raw materials) than outbound, and the steamship lines give low outward rates to attract cargo for their empty space.

Advantages to British Trade and Industry.—The existence of this reëxport trade then reacts to the advantage of Great Britain's overseas lines. Because Great Britain imports freight not only for herself but for all other countries, she can afford more frequent and extensive sailings to and from the lands that produce raw materials. Because Great Britain reëxports raw materials to and from industrial lands like the United States and Germany, she can maintain to them more frequent ocean service than if she handled only goods and materials originating in England itself. England uses most of the consigned material in her own factories, but she resells over half a billion dollars' worth of it annually to foreign manufacturers who go to London to buy because they are certain that they can obtain supplies there and because the London market affords facilities for economical trading.

Those raw material markets in England give the British manufacturer the first choice of the world's products, delivered right at his door, at an average cost lower than they could be bought for anywhere else on earth. Because of the constant supply of these raw products, of all grades, the manufacturer can buy them at any time, in any quantities he chooses. He can buy them by inspection, not by sample or description. The presence of these enormous stocks continually at hand is a stimulus to the creation of ever new British export industries. Naturally, the existence of raw-material markets in England gives her control over raw-material prices.

Our Dependence on British Reëxports.—The United States has become the greatest manufacturing nation in the world, and yet we have been largely dependent upon the British middleman for many industrial materials that we need. According to the British figures we bought in 1913, the last peace year, \$288,000,000 worth of goods from England. Of these goods more than half, \$147,000,000 worth, were products of other countries than England, but they were bought by us in England, shipped through English ports, in English bottoms, and dealt in by British mer-

chants, and the trade was financed by British banks. In 1916, out of our \$314,000,000 purchases in England, \$155,000,000 represented reexported products of all the world except England. Our dependence is increasing: during the first six months of 1917 we bought \$141,000,000 worth of goods from England, and of those goods \$104,000,000 worth, nearly 75 per cent, had originated in other countries than England. In 1916 we bought \$30,000,000 worth of cotton from England. That was mostly Egyptian cotton. In 1913 we bought over \$700,000 worth of Philippine hemp from England. From London we bought \$4,400,000 worth of East Indian jute and \$10,000,000 worth of wool that had come from Australia, South Africa, and Argentina. Though we are the greatest users of raw rubber among the nations, in 1916 we bought \$40,000,000 worth of Congo, Brazilian, and Straits rubber from England. We are the greatest consumers of tin, but in 1913 we imported \$25,000,000 worth of non-British block tin from Great Britain.

Our Small Reexports.—In 1913, her last peace year, Great Britain sold abroad \$532,500,000 worth of other countries' products, in addition to \$2,550,000,000 worth of her own products. Her reexports were one-fifth as large as the exports of her own products. In the year ending June 30, 1914, our last peace year, we exported domestic goods valued at \$2,365,000,000. Our reexports (called in our statistics "foreign exports") amounted to \$34,900,000. To give a fair picture of the situation, we must add to these American "foreign export" figures a certain proportion of our "in transit and transshipment trade." In 1914 this amounted to \$198,000,000. Of that sum \$156,000,000 represented goods moving to or from Canada by rail. The balance, or \$32,000,000, represents the true transshipment trade. Adding this to our \$35,000,000 of "foreign exports," we have a total of \$67,000,000 transshipment and reexport trade. So our reexports were 1/36 of our domestic exports. England's reexports were one-fifth of her domestic exports.

Nor is the situation improving. So far as figures show, we are not becoming, in any perceptible degree, a mart and distributing center of the world's products. From 1914 to 1917 (fiscal years) our foreign exports increased from \$35,000,000 to \$63,000,000, showing an increase absolutely but a decrease rela-

tive to domestic exports. We have no figures of the "in transit and transshipment" trade since 1915, but from 1914 to 1915 the volume of this business dropped from \$198,000,000 to \$142,000,000. Another index of our increasing tendency (if it existed) to become a world's market would be an increasing volume of imports held in bonded warehouses. This volume of such warehouse holdings on June 30, 1914, amounted to \$82,000,000. On June 30, 1917, the volume had sunk to \$68,000,000, though there had been an enormous increase in prices in the meantime.

While there is no striking advance to record in the figures indicating our activity as a distributing center of the world's trade, our domestic exports increased from \$2,365,000,000 in the fiscal year 1914 to \$6,294,000,000 in the fiscal year 1917. Domestic exports tripled. In other words, while we may have been seizing the opportunity to increase our domestic exports, we have not been making any attempt to become another of the world's trading centers. The extent to which England has maintained her preëminence in that direction is indicated by the figures already given. We may be sure that when the war is over Hamburg, and in fact all Germany, will put forth most intense efforts to resume the commercial march of the pre-war period.

The Free Port and the Consignment Market in the United States.—Free ports in the United States would be valuable in aiding us to get hold of this business, which, as yet, we have seemed unable to touch. First of all, there should be a free port in New York, which handles about half the exports and imports of the whole country. In 1912—no later figures are available—New York did one-third of the transit and transshipment trade of the United States. In that year New York paid in drawbacks over half the total paid in the country. New York did 60 per cent of the American bonded warehouse business. How would a free port work in New York? The following pages deal mainly with the idea of a New York free port, but the same principles apply to other ports.

Free Port vs. Bonded Warehouse.—There are those who insist that we need no free port, and that all the advantages that would accrue with the establishment of a free port are now offered by our bonded warehousing system. Let us consider a

single item, tobacco, the largest individual article of import carried in bonded warehouses. New York bonded warehouses afford no proper place to store imported tobacco for reëxport. For example, South American tobacco is badly packed. Before being reëxported it must be cleaned. But the merchant is not allowed to manipulate it in bond; he is not allowed even to alter the package. If it is kept in bond and not cleaned, it spoils, just like an apple beginning to rot. A merchant cannot keep an unsound package. If he clears the South American tobacco—that is, if he takes the tobacco from the bonded warehouse and pays duty on it—cleans, repacks, and exports it, he pays duty upon its gross weight and gets a duty drawback upon its net weight. On the contrary, the German merchant imports tobacco from Argentina, cleans and repacks it in the free port, and sends it back to Argentina itself. During all the process he never hears of the customs restrictions.

Disadvantages of Bonded Warehouses.—Moreover, there is a rule that all goods must be removed from bonded warehouses within three years after they have arrived there. That is, within three years they must be cleared or reëxported. But tobacco men claim that three years is too short a time for curing certain types of tobacco. Finally, there is an inevitable shrinkage in tobacco left to cure in a bonded warehouse. The merchant is responsible for duty on the entire weight of the tobacco that enters the warehouse, no matter how much comes out. This difficulty as well as the three-year limitation does not apply to a free-port warehouse.

At the Tariff Commission's New York hearing on the free port, Mr. Reis, an importer of laces, embroideries, curtains, and handkerchiefs made in Switzerland, told of his difficulties in attempting to import his products into New York and reëxport them to the West Indies and South America, after the war had cut off direct exports to those destinations from Switzerland.

"Many of our direct exports were cut off by the war. We tried to do our exporting through New York, as a good many lines were discontinued, and many of them lying here in bond, many of which we would have liked to dispose of. We had a good many cases where we could have disposed of

our merchandise in bulk, but unfortunately we found the goods were not packed in the proper way. The duty on our merchandise in most cases to South and Central America is based on gross weight. The goods (lying in New York) are packed in heavy boxes, with heavy packing, which is one of the reasons why we could not dispose of our goods as we would have liked. We tried to get permission from the Customs House to repack the goods, even under the supervision of the customs authorities, but the Customs House regulations did not permit the change of any package which goes into the Customs House or the rebaling or repacking of the goods in any way.

"Many of our customers would request part shipments of the merchandise, which was out of the question. We have, therefore, been compelled to ship these goods from New York to the British West Indies. There we have the goods repacked, and shipped thence to South and Central America, with the permission of the (British) Customs House."

The bonded warehouse seems an excellent device for driving our trade into foreign hands.

The Free Port Warehouse.—In a free-port warehouse, in contrast with this procedure, the merchant has space where he can repack, re-mark, blend, or assemble his goods. Along with storage room, he can have facilities for a showroom and ware-room there. Philip Kennedy, who in 1913 investigated European free ports for the Merchants' Association of New York, gives interesting details about the free port of Hamburg. He tells of an American firm renting space in a free-port warehouse where it put Elgin watch movements into Keystone cases, packed and labeled shipments, all in a single room. Another firm, next door, brought in Panama hats and fitted them out with hatbands. The showroom, sales headquarters, assembling room, and shipping department were all together. Kennedy tells of concerns that located their European distributing headquarters in the Hamburg free port, rather than at Rotterdam, Antwerp, or any other competing center, because of the Hamburg facilities. The Hudson Motor Car Company, for example, asked for the privilege of setting up their machines in the Royal Bonded Warehouse at

Antwerp and using the space as sales headquarters. They were told that nothing of this sort was possible. The need of assembling space is important, in that it saves on freight rates. Rates on goods "knocked down" are lower than on goods "set up." They can be shipped "knocked down," whenever possible, and assembled in free-port warehouses at destination.

As for the value of being able to mix goods and create special brands, in the free-port district a Hamburg merchant once trenchantly said, "It is not so simple to make Javan from Brazilian coffee, when the Javan crop is short!"

With the procedure in bonded warehouses as clumsy and unhandy as it is to-day, it is imprudent for the domestic merchant to entrust his goods to their care. How much more so is it for the foreign merchant, unable himself to deal with these customs complications and compelled to depute such dealings to alien agents?

Free Port District for Industries.—The next advantage claimed for a free-port area is that it would stimulate the growth of export industries manufacturing imported raw materials subject to duty. At the present time industries manufacturing such materials can, upon exportation of the product and upon presentation of the necessary evidence, recover 99 per cent of the import duty paid. As a matter of fact, the procedure is so complicated that there is a loss of not merely 1 per cent but, on the average, between 5 and 10 per cent of the duty paid, as it is necessary to hire experts to prepare the necessary papers, make the required proofs and claims, and collect the drawbacks. Moreover, the law requires that drawback payments be not made until 30 days after the claim has been approved. The Government moves so slowly that payments are frequently not made until long after the 30-day period is up. One Philadelphia merchant testifying at the hearings of the Tariff Commission at Philadelphia in January, 1918, stated that he was still engaged in collecting drawbacks on exports of 1916. Even with the best administration of the customs, the drawback procedure ties up considerable sums of capital. We shall probably face higher duties after the war, and in that case still more money will be unprofitably locked up in duties, pending drawbacks.

More money is often thus tied up than would be inevitable

under the 30-day repayment rule of the Treasury Department. For example, an importer of tin must have large quantities of it on hand, in order to keep his plant running. He must keep more than his immediate necessities, in order to provide for the uncertainty of idle vessels. During this time the duty that he has paid on this tin is a loss to him.

Difficulties of Drawback System.—Often the United States produces an article identical with a dutiable import used in manufacturing—for example, sugar. It is often difficult for a candy manufacturer or a fruit preserver in applying for his drawback to demonstrate just how many barrels of imported and how many of domestic sugar he used. Exporters of women's clothing have a hard time proving the foreign origin of items of lace that are included. In many cases the proof required is so difficult that it is abandoned, and no attempt at collecting drawbacks is made. Some of these manufacturers insist that the Customs Department looks upon them as a set of robbers and treats them accordingly. Such an attitude is perhaps explainable, but it does not stimulate export industries.

Industries located within a free port would of course have no such difficulties. No attention would be paid to them by the customs authorities until they came to send their products into the interior, when they would be under a disadvantage in comparison with the inland manufacturer. It is doubtful whether any industry not manufacturing exclusively for export would thus locate in the free-port zone. Possibly certain large industries, like the American Sugar Refining Company, would concentrate their export business there.

The manufacture of cigars in bond, made from imported tobacco, as at Tampa, is not a real example of what would go on in a free port. As a matter of fact, those Tampa cigars are not made for export. They are intended for consumption in the United States and are manufactured in bond in order to get the "in bond" stamp on them so as to sell as pure Havana material. If we could import cheap South American and Sumatra tobacco into a free port, with the freedom from bonded-warehouse restrictions that has already been described, it is not impossible that with our labor-saving machinery and our ingenuity we might be able to get a share of the international cigar business. At the

present time there is a machine that makes a perfect cigar in which we could use a domestic binder and a foreign filler.

We do a comparatively small volume of business in exporting goods made of imported dutiable raw materials. For example, in 1915 the United States Government paid to manufacturers of such goods \$7,339,236 in drawbacks. That year the average customs duties on dutiable imports into the United States amounted to 36.7 per cent, indicating that the value of the exported raw materials used in manufactured exports during that year was approximately \$20,000,000.

Free Port and Better Handling of Ships.—It is claimed, and probably with justice, that ships docking at a free port could be turned around more quickly than at their present piers. In the first place, it is likely that the free port would consist of a new port unit, a thoroughly modern installation of piers, freight-handling machinery, railroad tracks, and assembly yards, and advantageous connection by belt line and lighter with distributing railroads and coastwise and barge lines. The very modernity of the equipment would shorten the time of discharge in any American port. For example, at Hamburg 10,000 tons of miscellaneous cargo is unloaded in 40 hours, and the ship is reloaded in 30 to 40 hours more—that is, at a rate of discharge of 250 tons per hour, which is said to be a regular thing at the new Kuhwaerder piers in the Hamburg free port. Three or four days to discharge such a cargo in any American port would be record time. This saving in the time of handling, to be sure, would be the result not of any peculiarity of the free port, but of the modern equipment, which, of course, might be duplicated elsewhere.

There are other difficulties connected with the customs supervision of ships in ports which would be remedied in a free port. For example, in the port of New York at the present time a preliminary permit must be obtained before a ship can dock and discharge its cargo. Otherwise twenty-four hours must ensue from the time of obtaining the regular permit to the time of discharging the cargo. That works better with those shipowners who understand the formality than with those who do not. At the New York hearing of the Tariff Commission John F. Strauss, member of the Custom House Bar Association, explained some of the troubles which the New York authorities can cause to a

shipowner who desires to get his vessel in and out rapidly. He spoke of the antiquated system of issuing permits, citing the fact that no permit issued by the collector becomes valid unless it is countersigned by a naval officer, and that there is a conflict between the jurisdiction of a great number of independent officers, such as surveyors, naval officers, and appraisers, and that of the collector.

Customs Cause Pier Delays.—In New York many dutiable goods must be weighed upon the piers. After they are unloaded it is frequently necessary to wait from two to four days for a permit to weigh goods, and the Customs House people are apparently not too zealous in promptly certifying as to the weighing. Mr. Guilford said at the New York hearing of the Tariff Commission:

“Here we have to wait forty-eight to ninety-six hours for a permit to weigh the goods, and they are not signed by these people after weighing. The permits are simply thrown around and not delivered to the consignees.”

The delays caused by goods being left upon the piers, through the failure of the customs people to clear them promptly, result in a diminishing capacity of the piers to accommodate steamers. In New York, to-day, this is a particularly vital matter.

New York Chamber of Commerce on Free Ports.—The New York Chamber of Commerce in January, 1918, thus summarized the advantages which it thought that a free port would bring to New York:

(1) A free zone would facilitate the removal of imports from piers and from vessels, and thus relieve congestion so that ships would arrive and depart more quickly. For instance, the loss of time in weighing imports, in selecting one-tenth part for appraisers' stores, as is required in some cases, and in meeting the restrictions which may be imposed on transfer of imports from vessels by lighter would all be eliminated on goods landed at the free zone. When a ship ties up in a free port it is possible to unload the cargo without customs inspection.

(2) A free zone would make it possible to avoid the complications of bonding and drawbacks in the case of re-exported goods. Under the present system, for instance, where imported goods are merely repacked in this country the importer goes through the elaborate details of paying duties and then is subjected to further red tape, expense, and loss in the process of getting the duties he has paid refunded in the shape of drawbacks.

(3) The free zone would give the owner at all times control of his merchandise, which is an important advantage over the bonded-warehouse system. The owner has free access to his goods at all times. Machinery may be assembled here. Manufacturing may be carried on, where domestic and foreign materials are combined, or otherwise. Showrooms may be equipped and goods sold to buyers therein. Goods may be imported in bulk, split up, reassorted, or mixed up with other goods, and prepared for shipment as demand may arise in this country or abroad.

(4) The free zone has financial advantages in that it would release capital now tied up by our customs regulations. Also the more rapid movement of ships and cargo makes a more rapid turnover possible and a corresponding decrease in capital requirements.

(5) The creation of a free zone involves the building of large, specialized terminals with all modern appliances for loading and unloading, transshipping, and warehousing, and, in some ports abroad, for light manufacturing. Furthermore, dry docks, repairing and shipbuilding facilities are provided. This all cuts down materially terminal costs, which usually constitute about 60 per cent of the cost of ocean transportation.

(6) The establishment of free ports in this country will materially assist the United States to meet in foreign markets the competition for trade from such free ports in Europe and will be a great aid to our foreign and shipping trades in the struggle for international business at the close of the war.

Economic Changes Favoring Free Ports.—The main argument for a free port in New York is that it would give the city a

mechanism enabling it to become a world consignment market, such as Hamburg and London represent. Certain changes in our economic life, already accomplished or in prospect, give us hope that America may become a center of world trade. The amendments to the Federal Reserve Act put our banks as never before in the position of financing export and import trade. When the war is over our Government will be the largest single shipowner in the world. It should operate a network of services from the United States to foreign destinations, equal if not superior to the steamship service maintained by any other country.

World Trade Already Coming Here.—Certain classes of world trade in "colonial products" have already shown signs of life in America. For example, we are importing 10 per cent of the 1918 Sumatra tobacco crop, 30,000 bales. Normally this tobacco goes to the Amsterdam market, for purchase, and is then transported here. The same people who bought this tobacco for American distribution have not bought an extra quantity for distribution in South America because of the difficulty encountered in our bonded warehouses. Since the war broke out, and the international pelt and fur markets are no longer possible at Leipzig, where they used to center, we have had in America four great auctions, two a year, at which as many as 2,000,000 pelts have been offered in three or four days. St. Louis and New York have both introduced fur sales on a large scale. The fur dealers want a free port and claim that it would help them extend and perpetuate their international trade. Such was the plea of Joseph Ullmann, chairman of the Fur Board of Trade, at the New York hearings.

Imports of rice are now coming into San Francisco and going across the United States, to be transshipped at eastern or Gulf seaports to Cuban, Central American, and Caribbean ports. That transcontinental traffic has grown so large that consideration has been given to its stoppage, owing to the shortage in freight cars. There have been large shipments of Brazilian coffee from San Francisco to Vladivostok. Tea, imported in large quantities at New York, New Orleans, and San Francisco, has brought to those ports many buyers who were once accustomed to go to Europe. Tin has begun to move in increasing quantities from the Straits

Settlements directly to the United States, and so has pepper from the East Indies.

To hold and to extend our very recent gains in such importations, free ports would be of great advantage. Without them, and without the mercantile initiative which must accompany them, we may go back to our old methods of buying Brazilian coffee via Hamburg, Brazilian rubber via London, Argentine wool and hides via Antwerp, East Indian spices via Amsterdam, Australian wool via London, and African rubber and mahogany via Liverpool.

Revival of Transshipment in International Trade.—Finally, the opportunity for the creation of a great trade and transshipment center in New York may arise as a result of the smaller number of steamship routes that will be operated when this war is over. Even though the United States may have a larger share of the world's merchant tonnage than before the war, the total will be entirely inadequate to the world's commercial needs. The shortage of cargo space, in relation to the traffic that needs to be carried, will in all likelihood reduce the number of main ocean routes. Ports not at the termini of those main routes will have to trade by feeder lines transshipping at the termini. A free port, with its provision for rapid, frictionless transshipment of cargo and its ideal arrangement for holding and reexporting goods, should help make New York one of the great transshipment points.

For example, before the war Scandinavia had lines to the Far East. When the war is over, it is possible that neither ship tonnage nor trade movement will justify those lines. Scandinavia can trade with Japan and China by transshipping at Hamburg to the Hamburg-Far East Lines, or by transshipping at New York to the New York-Far East Lines. So with the Scandinavian-South American trade. Whether Hamburg or New York gets such business will depend on the sort of facilities each offers.

Transshipment and reexportation thrived a century ago. In proportion to the world's total volume of commerce, transshipment and reexportation were losing in relative importance before the war. Even the smaller nations had enough trade to justify direct lines overseas. Is not the war going to set us back, at least temporarily, into the transshipment and reexportation era? If

so, does not that development demand the establishment of free ports?

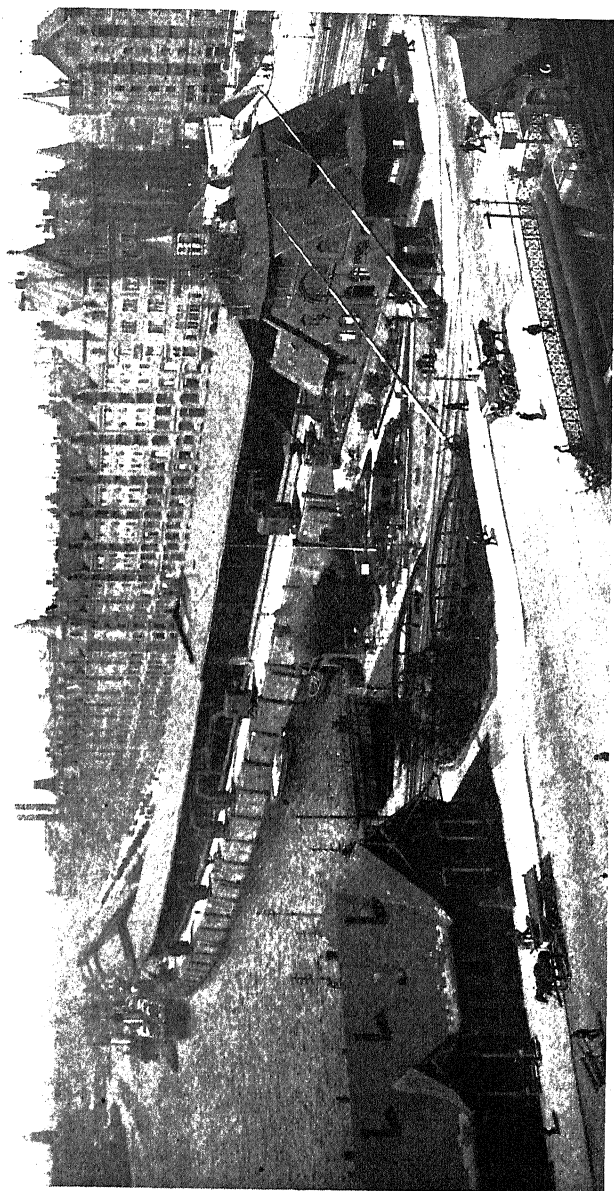
Cities Should Finance Free Ports.—There are certain definite things that should be kept in view in the plans for establishing a free port. They should not be established by Federal governmental expenditure. That method would easily result in a riot of "pork barrel" legislation, which would discredit the whole idea. Those commercial centers which have confidence in their ability to become centers of trade, transshipment, and reexportation should apply to the Secretary of the Treasury for permission to establish free-port districts. The total expenditure for such terminals—and they are merely terminals—should be made by the cities themselves, which could finance the new installations by dues or by taxes.

Possibly the Government can aid in the establishment of free-port areas by selling, to such cities as desire to purchase, the war base installations which the Government has put in at various ports about the country.

Some fear has been expressed that the old bonded warehouses in a port might suffer through the creation of new warehousing space in the free port. Such has not been the experience in Hamburg and Bremen. The old warehouses outside the free-port area either became open (not bonded) warehouses, or they succeeded in keeping full of bonded-warehouse business because of their central location and their greater convenience. No free-port warehouses can be erected in so central or so convenient a location as the old warehouses.

In Hamburg the Free Port Warehousing Company maintains warehouses with about 5,000,000 square feet of space. The warehouses are run upon a self-supporting basis. The capital for the installation was provided partly by private interests, partly by the State. The management is private, with State representation on the board of directors. Opposite is reproduced a row of buildings of the Free Port Warehousing Company at Hamburg. They look like university dormitories.

Men, not Mechanism, Must Win Foreign Trade.—We should have a bill authorizing the institution of free ports in this country. And yet the free port is simply an efficient tool of foreign



trade. The main purpose should be to develop the men who will handle that tool—the owners of ships and their operators, the merchants, and the bankers, who must work in coöperation. It is well to imitate the instrument of foreign trade which Hamburg created. But it is better to imitate the men she trained to use that instrument. Americans must learn to have what has been expressed as “the export mind.” Individual Americans must make the sacrifices involved in intensive training for foreign trade and long and observant residence in foreign lands. The Government can help some, but we must set out to help ourselves, for in international trade there is no short cut to success.

The great British and German merchants still retain the ancient custom of apprenticeship for their sons. They serve their terms in all parts of the world. They are found in the banking houses of Petrograd and New York, in the shipyards of Philadelphia and Belfast, with grain merchants in Buenos Aires and Odessa, with cotton buyers in New Orleans and Galveston, and with the exporters of Calcutta and Hong Kong. They learn the language, the customs, and the wants of the peoples with whom they live, and they come home a splendid body of men, to be recruited for the Government and the business world.

In the New York hearings of the Tariff Commission Mr. Patchin, of W. R. Grace and Company, thus expressed the co-operation that must prevail in creating a consignment market in New York:

“1. American steamers must be prepared, in connection with warehouses, to make the business attractive to shippers of foreign produce, by carrying the goods with options of warehousing and eventually forwarding to any desired market at reasonable rates of freight.

“2. Bankers must be prepared to make the necessary advances against negotiable warehouse receipts.

“3. Warehouse men must present the necessary security to induce bankers to accept negotiable receipts without question.”

Free ports are good things. We should have them. But, in planning the future of our international trade, let us not trust in them nor in any other material thing. Our chief reliance must be on the men that we put in charge of our oversea destinies.

INTERNATIONAL COMMERCE

BY O. P. AUSTIN ¹

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World trade currents cannot be radically changed by even the greatest of wars or the commercial regulations which may follow them. The custom which has grown up among men of interchanging the products of the various world areas and industries will necessarily be resumed with the return to peace.

The growth in international commerce from \$2,000,000,000 to \$40,000,000,000 in the single century which followed the application of steam to ocean navigation has divided the world into well-defined areas for the production of the basic requirements of man, such as food, manufacturing material, and manufactures. The interchanges between the regions producing these articles must be resumed at the close of the war, and the only question which we have to consider is what modifications in the major trade currents may be effected by new attempts at regulation by the various governments at the close of the war. Artificial regulation may temporarily check the consumption or production of groups of the population, but the custom of interchanging food, manufacturing material, and manufactures between those sections of the world in which they are produced cannot be terminated or radically changed by artificial regulations.

Twenty Billion Dollars' Worth of Merchandise Annually Exchanged Among Nations.—The world's international commerce

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in the year before the war totaled \$40,000,000,000. In fact, however, it represented but about \$20,000,000,000 worth of merchandise interchanged among the nations of the world in that year. Measurement of the world's international commerce is usually made by adding the value of all exports and imports. This aggregation necessarily is double the real value of the merchandise forming the international commerce of the world.

This \$20,000,000,000 worth of merchandise exchanged between the nations of the world in the latest normal year, 1913, consisted of manufactures to the extent of about \$8,000,000,000, or 40% of the total. Of the remaining \$12,000,000,000, somewhat more than one-half was manufacturing material and slightly less than one-half food.

The Warring Nations are the Great Trading Nations.—The ten nations actively at war are the chief participants in this national interchange of \$20,000,000,000 worth of merchandise. The total imports of these ten countries actively at war amounted in 1913 to \$12,190,000,000, and their total domestic exports were \$11,930,000,000, making their aggregate of imports and exports \$24,120,000,000 out of a world total of \$40,000,000,000 of imports and exports. The manufactures exported by the ten countries actively at war—Great Britain, France, Belgium, Italy, Germany, Austria-Hungary, Turkey, Bulgaria, Japan, and the United States—aggregated in 1913 nearly \$7,000,000,000; their importation of manufacturing material in that year was between \$5,000,000,000 and \$6,000,000,000 in value, and of food between \$4,000,000,000 and \$5,000,000,000, while they also imported about \$3,000,000,000 worth of manufactures largely for further use in manufacturing.

The imports of the four Central Powers in 1913 aggregated about \$3,475,000,000 and their exports \$3,100,000,000, their total imports and exports thus forming about 17% of the trade of the world in that year. Of the six Allied countries actively participating in the war, the imports in 1913 were \$7,725,000,000 and the exports \$8,703,000,000, thus forming about 39% of the world's international trade of that year. The Central Powers in 1913 exported nearly \$2,000,000,000 worth of manufactures, and the Allied group about \$4,500,000,000. Manufactures form under normal conditions about 80% of the total exports of the

United Kingdom, 68% of those of Germany, 65% of those of Austria-Hungary, 58% of those of France, 55% of those of Italy, and 48% of those of the United States. Manufacturing material forms normally about 33% of the total imports of Great Britain, 50% of those of Germany, and 60% of those of France, while food forms normally about 45% of the imports of Great Britain, 30% of those of Germany, and 25% of those of France. The countries now actively at war took in 1913, a perfectly normal year, about 60% of the world's total exports of domestic merchandise and supplied considerably over one-half of the merchandise forming the world's imports. They supply, as above indicated, about 80% of the manufactures entering international trade and draw to their ports approximately 75% of the manufacturing material and about 60% of the food entering international trade.

The Belligerents Are the World Manufacturers.—It is quite apparent, therefore, that the general trade movements, the great world currents of commerce, are to a great extent created by the countries now at war. They are the chief manufacturing countries of the world, and they must continue after the war to buy raw material and food and to pay for them in manufactures. They draw their raw materials chiefly from Asia, Africa, Oceania, North America, and South America and their food chiefly from Australasia and the Americas, and for the most of these they pay in normal times in manufactures, making up the difference in the fees for the service of their ships and the earnings of their invested capital in those countries from which they buy their food and raw material. How much of shipping and how much of capital they will have for this service after the war is of course problematical, but certainly they will be compelled in the future as in the past to pay in manufactures for a very large part of the food and raw material which they must continue to import for the requirements of their people.

Commerce Must Be Renewed at End of War.—Most of the belligerents except the United States and Japan will have lost a part, in some cases a very considerable part, of their trade, which they will make every effort to regain, while the rest will be on the alert to secure for themselves a share of the commerce lost by

others. They are already planning behind the war lines to enter the field with renewed vigor and with specially adapted machinery of commerce, for the purpose of regaining their lost trade and adding thereto as much as possible. The plans are the most elaborate that the world has ever seen and in most cases are supported by active governmental coöperation for the purpose of extending the activities of each country to every part of the consuming and industrial world. These activities will be further stimulated by the fact that the shelves will be empty in all those sections of the world which have been accustomed to draw their supply of manufactures from these ten warring countries, most of which have been unable, by reason of the war, to export manufactures in the same quantities as formerly.

Man's Commercial Requirements Not Changed by War.—The problem of trade after the war thus resolves itself into a question of the after-war activities of the belligerents and the trade restrictions which may come as a part of the peace terms. Man's needs will be the same after the war as before it. The great manufacturing countries must still continue to manufacture, the non-manufacturing world must still produce raw material and food, and the interchanges must be resumed much as before the war, except as affected by legislative regulations.

Regarding New Trade Regulations.—To what extent new trade regulations will be attempted and accomplished cannot now be foretold. Radical trade restrictions imposed by the victors would have a tendency to bring about at some time in the future a renewal of the present struggle, which has in fact grown out of commercial ambitions. Certainly the world hopes that those participating in the making of peace terms will exercise care so that no seeds of future warfare are sown in the agreements which they may make.

International Hostilities Merely Suspend International Trade.—As to a refusal of the groups of nations now at war to resume trade relations with each other after its close, we can only judge the future by the past. No former war in modern times has been followed by any such result as this. On the contrary, trade be-

tween belligerent countries has usually increased soon after the return to peace.

This was strongly marked in the relations between France and Germany after their war of 1870-71. The imports of France from German territory in 1869, the year prior to that war, were \$50,000,000 in value; in 1872, the year following the war, they were practically \$70,000,000, and they averaged \$66,000,000 per annum in the five years after the war. German imports from France in the same period showed an even larger gain, having been \$60,000,000 in the year before the war and averaging annually \$83,000,000 in the five years following the war. Thus, trade between France and Germany showed an increase of 40% in the years immediately following the war.

Another example is found in the trade relations between the United States and Spain preceding and following our own war with that country. Our imports from Spain in 1897, the year prior to the war, were less than \$4,000,000; in the five years following the war they averaged \$6,000,000 per annum, an increase of 50%; while our exports to that country, which were \$11,000,000 in the year preceding the war, averaged \$14,000,000 per annum in the five years following the war, an increase of 25%.

The next example is that of the trade between Japan and Russia prior to and following the Russo-Japanese war; and here we find that Japan's exports to Russia, which were about \$1,500,000 in the year prior to that war, averaged more than \$3,000,000 per annum in the five years after the war, an increase of over 100%.

No countries in the world are more keenly alive to the importance of commerce and of governmental coöperation therein than those now at war. It seems highly improbable, therefore, that the representatives of their commercial or financial interests will desire to enter upon a business war after peace is declared, or that they will give their consent to any legislation or agreement having as its purpose a restriction of trade.

Commerce Between Belligerent Groups Should Not Be Sacrificed.—The volume of commerce between the two groups of countries now at war was much greater than is usually realized. The six leading countries among the Allied Powers—Great Britain, France, Belgium, Italy, Japan, and the United States—sold in 1913 to the four Central Powers—Germany, Austria-Hungary,

Turkey, and Bulgaria—\$1,275,000,000 worth of merchandise and bought from them \$1,300,000,000 worth, making the 1913 commerce between the two groups of countries now fighting each other over \$2,500,000,000. Great Britain alone sold to the four Central Powers \$400,000,000 worth of merchandise in 1913; France \$150,000,000, and the United States \$375,000,000. Will the Allied countries be anxious to maintain the breach of trade relations with the Central Powers, which in the year prior to the war gave them a market for \$1,275,000,000 worth of their products and supplied \$1,300,000,000 worth of merchandise which they required for their internal commerce or industries? Germany in 1913 sold to Great Britain \$340,000,000 worth of merchandise, to France nearly \$200,000,000, to Belgium \$130,000,000, to Italy \$100,000,000, to Japan \$30,000,000, and to the United States \$170,000,000 worth, or nearly a billion dollars' worth to the six Allied countries. Does anybody believe that Germany will be willing to refuse to reopen trade relations with countries which furnished her a market for a billion dollars' worth of merchandise and sold to her approximately a billion dollars' worth of products which her people needed and will need again when the war is over?

We do not realize how much of the trade of the European countries flows between each other, and how small a proportion is "over-sea" trade. Only 40% of the trade of the European countries as a whole is with the other continents; 60% is intra-continental. The four Central Powers in 1913 sold to the four Allied countries of Europe which they are now fighting nearly \$900,000,000 worth of merchandise, and those four Allied countries sold to the four Central Powers which they are now fighting another \$900,000,000 worth of merchandise. Does anybody suppose that either of these groups of countries which found in their present opponents a market for nearly a billion dollars' worth of merchandise in 1913 will be anxious permanently to have severed trade relations?

Industrial and Commercial Power of Belligerents After the War.—If we are to assume that the countries now at war will resume trading relations with each other and that the peace agreement will be of a character which will not radically change trade currents, we may next inquire as to the industrial and financial

conditions of these ten countries when they will emerge from the war. Will they be able to resume the production of manufactures in quantities greater or less than before the war? Will the loss of man power as a result of the war greatly reduce their power of production? Has the war so affected their financial condition and supplies of capital as to reduce or increase their power of production? Will they be able to sell their manufactures on the long credits which formed so important a factor in their former trade success? Will they still have in the foreign countries the great investments of capital by which they were able to control trade? Will they have the advantage, as heretofore, of a plentiful supply of their own ships with which to send their manufactures to other continents and bring back the needed manufacturing material and food supplies?

Some of these questions are more easily asked than answered, and the answers, if made, could not be applied uniformly to all the countries in question. While the loss of property has been very great in the countries in which the actual fighting has occurred, and while large quantities of munitions prepared in the other countries have been necessarily consumed on the battlefields, this destruction has been offset in some degree by the stimulation of the manufacturing industries of all the countries at war, except in Belgium and those areas in France and Italy in which actual hostilities have occurred.

Most of the countries participating in the war now seem likely to emerge from the great struggle with manufacturing facilities materially in excess of those with which they entered it. True, most of the new factories and many of the old ones will be equipped with machinery especially intended for producing war materials, but the promptness with which the factories of the United States transformed themselves from producers of peace requirements to producers of those of war suggests that a similar transformation of the war-time factories at the close of hostilities may give to the belligerents an increased producing power. As to man power with which to operate the factories, that will of course be somewhat reduced through actual losses of men and reduction in the industrial power of cripples, but this loss will be somewhat offset by the substitution of women workers in many lines. With the possibility of adapting to peace requirements the increased machinery introduced during the war, the loss of producing power

will probably be scarcely appreciable, and the net change may in fact be an increase rather than a reduction.

As to the after-war financial condition of the belligerents and their power to supply manufactures for world markets, the problem is equally difficult. True, there have been great losses, not only within the fighting area but in the expense of munitions and supplies produced elsewhere, but the production of those munitions and supplies has in turn proved extremely profitable to the producers, and if we are to judge from surface conditions the manufacturing industries of those sections outside the zone of hostilities will emerge from the war in a high state of prosperity, at least when measured in terms of existing currency. That the manufacturers will be required to contribute for a long time a considerable part of their earnings in payment of taxes to meet the charges for interest and amortization on the public debts goes without saying, but it seems probable, to judge from the reports coming from all the countries at war, that many of the manufacturers will find themselves at its close possessed of greater facilities than at its beginning. This of course is especially true in the countries that are distant from the scene of the war—the United States and Japan—but it applies also to those that are nearer, like Great Britain, Germany, Austria-Hungary, and the undevastated sections of France and Italy.

That the demands upon the manufacturers which the several governments will be compelled to make in order to meet obligations resulting from the war will be very great is apparent. The additions made to the debts of the nations at war already exceed \$115,000,000,000, bringing the national debts of the ten countries actively participating from \$25,000,000,000 prior to the war up to \$140,000,000,000 at the present time (June, 1918), and the annual interest requirements from about \$1,000,000,000 up to more than \$6,000,000,000. But practically all these heavy interest payments will remain within the respective countries, since most of the war debts are internal.

Effect of War Currency Inflation on After-War Industrial Powers.—In the matter of currency, "money" so called, the quantity available in every country at war will be very much greater than at the beginning, but its purchasing power will be reduced.

The total quantity of "money"—gold, silver, and paper—in the world has increased from 13½ billion dollars at the beginning of the war to about 32 billion dollars at the present time, and most of this increase has occurred in the belligerent countries. Nearly all of this increase, however, is in the form of paper—notes issued by the governments or by the great banks which serve them—and the increase in this paper money has been far greater than that of the metallic reserve which normally forms its support. The world's "uncovered paper," which at the beginning of the war was slightly less than \$4,000,000,000, is now fully \$20,000,000,000, and this increase has occurred chiefly in the European countries actively participating in the war. That this great increase in paper currency is a species of inflation, and perhaps "fiat money," cannot be doubted. But it cannot be expected that the increase in quantity of manufactures will be at all proportionate to the increased currency available for the operation of the factories. Labor and raw material will be much higher in terms of the depreciated currency. Yet it is a fact that all reports which reach us of the conditions of the manufacturing industries of the countries which have been at war for four years indicate wonderful activity and apparent prosperity of their manufacturers, large outputs of material, and high dividends to stockholders.

Whether the increased producing power and increased earnings which have been built up with the use of this depreciated currency will continue when the pressure of war demand is withdrawn and the industries made again dependent upon the requirements of peace cannot now be fully determined.

Nominally the cost of production will continue high in practically every country of the world, since all the manufacturing countries are now warring countries, and prices of labor and material have advanced with all of them, but will not the increase in price have to be borne by the consumer, whether in the home country or in the non-manufacturing areas of the world? If so, those non-manufacturing sections must in turn advance the prices of the food and raw materials with which they are to pay the increased price of the manufactures, and thus the entire pre-war system of exchanging manufactures for raw material and food will be resumed, but at nominally higher prices for all the articles in international trade.

Other Changes Abroad.—In two of the great requirements of commerce—shipping and capital for foreign investment—the European manufacturing countries will doubtless find themselves badly handicapped at the close of the war. Their shipping facilities have been greatly reduced, especially those of the Central Powers. Their capital in foreign countries has been called home wherever practicable, and some of it has been lost through seizure by hostile governments. In both these lines, however, all the governments at war are actively at work preparing to restore former conditions. In Germany, Great Britain, and France great organizations are being formed to render aid in the construction of ships for the purpose of restoring their merchant marines. Plans are being worked out for the establishment of new banking facilities in the foreign countries, and apparently much more will be accomplished through governmental coöperation than in the past. The several governments will take a greater interest than ever in foreign trade and already evince a greater disposition to participate actively in its conduct. Whether this closer participation by the governments in international trade will work for good or evil cannot yet be foretold, and whether such governmental participation in trade may increase the danger of further international disagreements can be determined only by the experiment.

Summary.—On the whole it may be said that trade after the war will probably not be radically different in its general characteristics from that which existed before the war. The great manufacturing nations (the present belligerents) will continue to produce manufactures for the rest of the world and will continue to buy manufacturing materials and food. They may be able to utilize their much larger circulating medium to increase the quantity of manufactures turned out, but while selling the manufactures at a nominally higher price they may be compelled to pay in turn a higher price for their raw materials and food. Possibly the victors in the war may be able to establish regulations which will slightly deflect the trade currents, but if they are wise they will not make restrictions which will result in a renewal of the war. All the nations are already actively preparing for the new trade agreements which must follow the war, and the strategy of the council table will be as important as that of the battlefield.

The Problem for the United States.—Our own country will emerge from the war with a greatly increased share of world trade. Not only has this increase occurred in the trade with the countries at war, but we are also supplying a much larger proportion than heretofore of the merchandise imported by the neutral and non-manufacturing regions of the world. The increase in our foreign banking facilities which took place at the beginning of the war has already had its effect. Each year shows an increase in the share which the United States is supplying of the imports of the non-manufacturing world. Prior to the war we were supplying but about 15% of the imports of South America; by 1915 our share of her imports was 35%, and in 1917 apparently about 50%. In the imports of Asia the share which we are now supplying is double that prior to the war, and this is true also of Africa and to a lesser degree of Oceania.

Increase in exportation of manufactures at the close of the war will be an even greater necessity with us of the United States than with the other nations, which have been in the past larger exporters of that class of merchandise. In the years immediately preceding the war we had reached a point in our history in which we had no more food or raw material, except cotton, to spare for the outside world, and while our exportation of manufactures had grown in a gratifying fashion in the decade preceding the war, the total in 1913 was only a little over a billion dollars, forming about one-eighth of the manufactures entering the international trade of the world. The percentage which food and manufacturing material other than cotton formed of our exports had been steadily declining and would have continued to decline but for the peculiar conditions of the war and the demand of our Allies for our food. We may expect that at the termination of the war our exportation of food and raw material will return to about normal and that we shall again be, as in 1913, under the necessity of greatly increasing our exportation of manufactures if we are to retain our rank as one of the great exporters of the world.

Further, with our growing population we are becoming more and more dependent upon foreign countries for raw material and food, and in order to have the funds with which to buy these needed requirements we must increase our exportation of manufactures.

278 AMERICAN PROBLEMS OF RECONSTRUCTION

How we are going to do this in the face of the renewed activity of those countries in which labor has always been and probably always will continue to be cheaper than with us is a problem for our manufacturers, financiers, diplomats, and law-makers. Doubtless we shall be able to decrease the cost of manufactures somewhat by increasing further the use of machinery, and this means an increased use of capital, of which we have a greatly increased supply.

XVIb

GOVERNMENT AIDS TO TRADE

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VARIOUS KINDS OF GOVERNMENT AID

When we speak of Government trade promotion we are apt to suggest the idea of the consular service or Government-printed announcements of specific opportunities for trade, or possibly the idea of a world's fair. In our own Government we have a special Department of Commerce, charged by law with the function of promoting the foreign and domestic commerce of the United States. In Great Britain the Board of Trade, in Germany the Imperial Department of the Interior, in France the Ministry of Commerce, in Italy the Ministry of Industry, Commerce, and Labor, in Japan the Ministry of Agriculture and Commerce, and in practically all other countries similar departmental organizations have been charged with extending aid to trade. These ministries or departments have come to work on more or less standardized lines. The trade-promotion work is alike in its general structure, but, depending largely on the amount of attention devoted to the diverse accepted methods of trade promotion, the success in the different lines has varied noticeably. In the present paper this phase of Government aid to trade will be discussed more in detail, in both its historical and its after-war

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aspects. However, there are some broader sorts of Government trade promotion which deserve at least passing attention.

IMPORTANCE OF LEGISLATIVE DEPARTMENT

The legislature, apart from its control of the purse for the ordinary departmental expenditures, is the great force in the Government for trade promotion. The attitude of the law-making body on ship subsidies, production bounties, export bounties, and high or low tariff on raw materials and manufactures, as on commercial treaties and international relations generally, is always of the highest significance in domestic as well as in foreign trade. Banking is another trade subject which is very much in the hands of the legislators. The creation of our Federal Reserve Board and the facilities for foreign banking which have recently been given by law are important steps in trade promotion by our own Government. Anti-trust legislation and other legislation having to do with the form of business organization and fair and unfair competition at home and in foreign markets may exert a promotive or a repressive influence. The Webb-Pomerene act is another one passed with the promotive intent of facilitating organization for export trade. Stable political conditions within a country, sound policies of developing natural resources and improving the social conditions of the population, and wise encouragement of domestic trade and industry are important elements of the country's lasting prosperity and of its part in world commerce. These are among the cares of the law-making body and are too frequently overlooked in considering what aid a Government is giving to trade.

DIPLOMATIC AID—EXTERNAL AFFAIRS

Diplomacy is another side of Government activity that is vastly important in trade promotion. When a country's foreign policy, as reflected in legislation, diplomacy, and the spirit of the administration of laws, makes a friendly impression on foreign governments and foreign peoples, that country's commerce is aided to just that extent. When a country has colonial possessions, its colonial policy and the administration of its colonial

possessions have a very direct bearing on the trade of its own citizens or subjects and at the same time are closely tied up with its general foreign policy. International group agreements, by which various details of commercial intercourse are facilitated, are of conceded value.

AFTER-WAR NEED OF BETTER INFORMATION SERVICE

The British Board of Trade, announcing the changes in the British Government organization, started out as follows: "It is clear that after the war the demands upon the Government for the collection and diffusion of commercial intelligence for the benefit of British trade are likely to be very much greater than in the past." Our Department of Commerce in Washington has said the same thing in many of its reports during our first year of war. Foreign governments, like our own, are anticipating a period of intense commercial competition after the war. More American firms than ever before will be entering the foreign-trade field. The importance of governmental foreign-trade promotion—that is, by means of a well-developed foreign-trade information service—will be of more significance than it ever has been before. The Government can certainly help firms to get into foreign trade and help them in the conduct of their foreign business. The part of the Government in all this should not, however, be overestimated. In the future, as in the past, it is going to be the business sagacity and competitive power of the individual dealers that will figure most in the competition in foreign markets. Our Government in Washington, however, has prepared to do its part.

WINNING THE WAR IMPORTANT TRADE PROMOTION

The terms of peace and the international commercial agreements which are entered into after the settlement of the terms of peace will have a determining influence on many of the channels and courses of trade in the coming years. The most direct and far-reaching method of trade promotion before our Government at this time is the vigorous prosecution of our end in the great war. When peace comes our Government, with the governments of our Allies, must be in a position to assert itself on the questions which most closely touch our trade.

FOREIGN EXPERIENCE

The specific and avowed trade promotional activities of the important industrial countries are discussed briefly below.

ENGLAND

Report of the Foreign Office Committee.—The first step in the reorganization of the foreign trade promotion service in England during the war was the detailed report of the Foreign Office committee, which was submitted on August 10, 1916. It pointed out that there must be a body of agents distributed over foreign countries and an authority at home to which the agents report and which informs and advises the Government and trading community. In analyzing the organization abroad, it places much emphasis on the services of commercial attachés—that is, resident trade experts abroad—accredited to the diplomatic missions. The committee said, "We desire to emphasize as strongly as possible that the position of the commercial attaché must be regarded as the key to the whole proposed organization," and it was proposed that considerable staffs should be given to the commercial attachés. It was proposed that the consular staffs should be increased in order to allow the consuls to have more time for trade promotion, and the consular service was spoken of as "a preparatory service for the post of commercial attaché." The committee recommended that the appointment of special investigators abroad, following precisely the model of the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce (referred to by name in the recommendation), should be greatly extended.

Reports of the Joint Committee.—In January, 1917, the Secretary of State for Foreign Affairs and the President of the Board of Trade appointed a committee "to inquire into the best form of organization for promoting our foreign trade." The committee was unable to agree as to "the best form of organization," the Foreign Office representatives holding out for exclusive Foreign Office control and the chairman of the committee (Lord Faringdon) and the Board of Trade representative contending for Board of Trade control.

New Joint Department of Overseas Trade.—At the end of August, 1917, the Government announced that the War Cabinet had sanctioned the creation of a new Department of Overseas Trade (Development and Intelligence), the new department to be represented in Parliament by a Parliamentary Secretary who should "occupy the position of Additional Parliamentary Secretary at the Board of Trade and also of Additional Parliamentary Under-Secretary for Foreign Affairs." The plan was obviously a compromise, and in the few months in which it has been in operation it has seemed to have the effect of giving the Board of Trade an even larger share in the foreign trade promotion service than it had before. The Board of Trade has always had control of the trade-commissioner service—the trade commissioners are resident agents in the self-governing dominions. Each trade commissioner has had the assistance of a number of Imperial trade correspondents situated in various districts of the dominion concerned. The service of trade commissioners "is to be supplemented by a large extension," on the strong recommendations of the Dominions Royal Commission; as a starter the number of commissioners is being increased from four to sixteen. It is announced that the trade-commissioner service will be extended to the Crown colonies and protectorates, where the Board of Trade has in the past had only trade correspondents.

The creation of the joint department of the Board of Trade and the Foreign Office brings the work of the commercial attaché service of England closer to the Board of Trade than it has ever been in the past. The commercial attachés have to do in foreign countries many of the same tasks as the trade commissioners in the British dominions. In March, 1918, the *Board of Trade Journal* carried a statement that it was proposed to expand the attaché service to a total of twenty-seven men—in Argentina, two; Belgium, two; Brazil, two; Chile and Bolivia, one; China, three; Scandinavia, two; France, two; Italy, two; Japan, two; the Netherlands, one; Russia, two; Spain and Portugal, two; Switzerland, one; and the United States, three.² It is the policy

² Our Government has (July 1, 1918) eleven commercial attachés, under the Department of Commerce, one each in England, France, Russia, the Netherlands, Scandinavia, Brazil, Argentina, Peru, Australia, China, and Japan. In addition we have resident trade commissioners in some of these countries (five in all). In 1918 the number of

of having resident officials abroad, working exclusively on trade matters, which is being most developed under the British system.

Reorganization of the Board of Trade.—In addition to creating the new joint department mentioned, there has been a strengthening and improvement of the British Board of Trade. In the official memorandum on reorganization, published in the *Board of Trade Journal* January 17, 1918, provision was made for two main divisions or departments of work—the Department of Commerce and Industry and the Department of Public Service Administration. "The Department of Commerce and Industry will be mainly concerned with the development of trade, with vigilance, with suggestion, with information, and with the duty of thinking out and assisting national commercial and industrial policy. The Department of Public Service Administration will be primarily engaged in the exercise of statutory and other administrative functions of a permanent nature with regard to trade and transport now or in the future entrusted to the Board of Trade. It will therefore include the work performed by the present marine, railway, harbor, companies, and bankruptcy departments." Under this division of functions, in which the Department of Commerce and Industry is ranked higher, that Department embraces, besides the Department of Overseas Trade (Development and Intelligence)—the joint department—a Department of Commercial Relations and Treaties, a Department of Industries and Manufactures, a Department of Industrial Problems, a Department of Industrial Power and Transport, a Department of Statistics, and a miscellaneous "General Economic Department." The Department of Commerce and Industry is to "keep in close touch with the Department of Scientific and Industrial Research and with other organizations, such as the Imperial Institute and the National Physical Laboratory." An Advisory Council "thoroughly representative of the commercial and manufacturing interests of the country" will work with the Department of Commerce and Industry.

The significant thing in all this for us Americans is that these subjects have received so large an amount of attention while the country has been straining all its efforts to win the war. Agents both will be increased, but not to the same extent as the proposed British organization.

of the British Government, working on trade research and industrial research, have visited this country and other countries. The British resident service abroad, including trade commissioners and commercial attachés, is being decidedly strengthened. The British Government has at length decided to follow our lead in sending special agents, experts in particular industrial lines, to visit foreign countries and report on the conditions of foreign markets. The British Government has given encouragement to the formation of British chambers of commerce in foreign countries, so that such chambers now exist in Argentina, Brazil, Chile, China (eleven chambers), Egypt, France, Italy (with branches in five cities), Morocco, Persia, on the Persian Gulf, Portugal, Roumania, Russia, Spain, Tunis, and Uruguay. They are not official organizations. It is also worth noting that the publications of the Board of Trade have been rejuvenated, and the new Board of Trade *Journal*, published weekly, is worthy of the regular attention of American business men. The British organization abroad and the distributing organization at home have been made much stronger, and British trade will undoubtedly benefit by it.

Radical Departure in Trade Promotion.—In the summer of 1916 the British Government took a radical step in the way of trade promotion by becoming full partner in the British-Italian Corporation (Ltd.), with a capital of £1,000,000. The British Government agreed to contribute a subsidy of £50,000 annually for the first ten years after the incorporation of the company, or the equivalent of 5 per cent upon its paid-up capital if less than £1,000,000. Provision is made for repayment to the British Government from profits represented by dividends over 5 per cent. In this process of repayment to the Government interest will not be included. The large banks in England—the London County and Westminster and Lloyds Bank—were the chief subscribers to the stock, which was not issued publicly. Under the Italian law the Compagnia Italo-Britannica was formed with a capital of 10,000,000 lire, one-half taken by the British-Italian Corporation and the other half by the Credito Italiano and allied financial interests in Italy. Three of nine directors in the Italian company are British. Three of nine directors in the British company are Italian. Explaining the new venture, the Chancellor

of the Exchequer said: "The primary object of the two companies is the development of the economic relations between the British Empire and Italy and the promotion of undertakings in the commercial and industrial field in Italy. They will carry out banking and financial undertakings which do not directly fall within the strict definition of banking as understood in this country."

The report made public after the first meeting of the British-Italian Corporation (Ltd.), in April, 1917, made it plain that the organization of the company with Government support was largely to counteract German attempts at economic penetration, which had been very successful in Italy before the war. According to the report, published in the *Statist*, the British company, working in conjunction with the Italian company, had investigated seven railway schemes, one canal, three railway electrifications, three harbor works, four mines, four shipping and ship-building companies, two cement companies, one gas company, five general import and export companies, four hydro-electric developments, two land developments, one metallurgical concern, and one waterworks. There were unfavorable reports on some, and favorable on others, which the company would investigate further. There were also various minor financial transactions on trade matters.

It was suggested in Parliament, when the formation of the British-Italian Corporation and the Government subsidy were first announced, that there was room for similar Government aid in financial and commercial matters in Russia and France. In April, 1917, another step in the same direction was taken in the formation of the British Trade Corporation, under Royal charter, "to provide financial facilities for trade after the war." In the House of Commons, according to the *Statist*, it was stated as an object of the corporation "to assist the development of British trade and industries, to procure for British manufacturers orders in connection with new overseas undertakings, and to finance contracts in connection therewith in a way which has not always been possible in the past." The corporation has an authorized capital of £10,000,000, of which £2,000,000 was issued and paid up by December 31, 1917. In January, 1918, the first report was issued and showed that from June to December the principal work had consisted in making connections in foreign

countries, but that some actual assistance had already been rendered to foreign trade, an information service had been set up, and plans were under way for the insurance of commercial credits. The British Government also rendered direct assistance in the form of a subsidy to the great British Dyes (Ltd.), the so-called Government dye factory. Government funds were also advanced to the Australian zinc producers. All these undertakings were tied up with the thought of counteracting German economic penetration and freeing England from dependence on Germany, in accordance with the resolutions of the Paris Economic Conference. The English writers are still expressing wonderment at the extent to which governmental participation in trade has gone in England, a country noted for its long-standing antipathy to such participation.

War Boards and Reconstruction.—Corresponding to our War Trade Board, the British Government has its War Trade Department, War Trade Statistical Department, and War Trade Intelligence Department. In all the governments of the belligerent countries these controlling and administrative bodies, having to do with the trade in war time, have had the impetus, occasion, and opportunity to make investigation into certain important features of trade and have accumulated files of information that may be of great value in the reconstruction period and after. The British Government already has (since August, 1917) its Ministry of Reconstruction, which up to January, 1918, had appointed no less than eighty-seven separate commissions and committees, of which five were concerned with trade development, two with finance, six with raw materials, two with intelligence, and twenty-one with scientific and industrial research. The committees on development of trade are the Commercial and Industrial Policy Committee, Dominions Royal Commission, Industrial Development Commission (Government of India), Belgian Trade Committee (Foreign Office and Board of Trade), Trade Relations After the War Committee (Board of Trade), Committee on the Chemical Trades (Ministry of Reconstruction), Committee on the Engineering Trades, New Industries Committee (Ministry of Reconstruction), and the Board of Trade committees on the coal, electrical engineering, iron and steel, non-ferrous metal, and textile trades and on the shipping and shipbuilding industries.

The Ministry of Reconstruction has made a minute subdivision of the various aspects of the most important after-the-war questions. The Ministry of Reconstruction is a promotive agency that will be a great power for aiding trade, working in coöperation with the Board of Trade and the Foreign Office and the other interested departments of the Government. The Committee on Commercial and Industrial Policy After the War, headed by Lord Balfour of Burleigh, made its final report at the end of April, 1918, giving, with reservations, recommendations of policies to be pursued. It had a cool reception, however, and the *Statist* and the *Economist* voiced a strong body of opinion to the effect that such reports at this time, when world conditions at the time when peace is won cannot possibly be foretold, are of no more than academic value and deserve little attention.

Industrial and Scientific Research.—It was only a year after the outbreak of the great European war when the British Board of Education came out with its comprehensive scheme to establish a permanent organization for the promotion of industrial and scientific research. In July, 1915, by Order in Council the Committee of the Privy Council for Scientific and Industrial Research was appointed. In November, 1916, the Imperial Trust for the Encouragement of Scientific and Industrial Research was incorporated by Royal Charter, Parliament having voted the sum of 1,000,000 pounds sterling to deposit with the trust. The work is actually being carried out by the Department of Scientific and Industrial Research, and in addition to the Committee of the Privy Council there is an advisory council of eminent scientific men and industrial men. By agreement with the Royal Society the great National Physical Laboratory now works under the Department, which also maintains very close relations with the Imperial College of Science and Technology. This concentration and systematizing of scientific and industrial research, with much increase of work in the field, will benefit English industry and trade.

British Overseas Dominions.—The British overseas dominions have also been preparing for the future. The Dominion of Canada, the most active of the dominions in this line, is no longer content to depend exclusively on the agencies of the mother

country for the promotion of Canadian trade and now sends its official representatives to foreign countries to report on trade opportunities from a Canadian standpoint, for the benefit of the Canadian business public. In 1916 the Canadian authorities were quick to appreciate the trade opportunities in Italy offered by the shutting off of trade with Germany. The Canadian Government sent a commercial commission to Italy to study and report on conditions and opportunities and continued the work by means of a resident trade commissioner. The Canadian Government has its separate Department of Trade and Commerce, and the Commercial Intelligence Branch of that department is displaying marked energy during the war period in preparing to build up after-the-war trade. The Canadian trade-commissioner service has been increased so that now (July, 1918) there are trade commissioners or acting trade commissioners in Argentina, Australia, British West Indies, China, Cuba, Italy, France, Japan, Holland, New Zealand, Russia (two commissioners, one in Siberia), South Africa, and the United Kingdom (six trade commissioners, one in London, the others in the provincial cities); in addition, there are Canadian commercial agents in Australia, British West Indies, and Norway and Denmark. Since 1912 there has been special Canadian trade-intelligence service from certain designated British consulates in nineteen countries.

There is naturally a close relation between the various British possessions and the home Government, which in some respects has been made even closer by the war. The Dominions Royal Commission, appointed as a result of the Imperial Conference of 1911, began a study of the resources, trade, and legislation of the dominions in 1912. The commission's work was not completed until 1917, when a report was made containing many recommendations for the promotion of mutual interests. This report induced the British Government to take action in increasing its number of trade commissioners. Extensive increase of activities within the Empire may be confidently expected in the future.

GERMANY

The Old Official Mechanism of Trade Promotion.—In Germany, as in England, the war served to bring out some of the defects in the departmental organization of the Government and hasten

reorganization. We are, and rightly, apt to view Germany as a country that is over-organized—governmentally, in business, and socially. It is therefore somewhat a matter of surprise that the Imperial Government never has had a Department of Commerce. The foreign trade promotion work of the German Government centered in the fourth division of the Imperial Ministry of the Interior. There was a Tariff Division, a Translation Bureau, and an Information Office with weekly, monthly, and annual publications. The Government maintained a staff of resident commercial experts at twelve different foreign points and agricultural experts at six foreign points. The professional consular officers gave very material attention to foreign trade. They not only furnished the ordinary trade information—as to business conditions, trade opportunities, resources, lists of dealers, transportation and other facilities—but they also furnished a certain amount of credit information.

As the war has thrown light on some of the relations of the German Government and trade, it has been stated, on the basis of the liquidation of German firms in Hongkong, that no evidence of Government subsidy to commercial concerns was found; moreover, there was evidence of very bitter competition between German firms. The reports of our alien-property custodian will doubtless make available facts bearing on these important matters.

Government Control of Trade in War.—During the war the German Government has extended its control of trade further and further. The régime of compulsory syndication of industries and of the distribution of commodities in Germany during the war period is beyond all previous experience. The Government has intimated that control will be continued at least through the transition period from war to the complete reestablishment of peace. The likelihood of such continuation has not been received with popular approval in the mercantile community in Germany, although it is fully realized that there must be some carefully worked out mechanism for dealing with the vital questions of raw materials and shipping.

The New Department of Economic Affairs.—The German mercantile community was not successful in getting an entirely sep-

arate and independent Imperial Department of Foreign Trade. As in England, it was successful in getting acknowledgment by the Government that the work needed reorganization. The Ministry of the Interior had too many unrelated functions to make for the best possible work in trade promotion. The new Department of Economic Affairs (Reichwirtschaftsamt) will have charge of matters of commercial policy, labor, shipping, and the economic aspects of agriculture and manufacturing. The *Deutscher Reichsanzeiger* for November 5, 1917, announced the jurisdiction of the department in matters of commercial policy, commercial treaties, war economy measures (including retaliation), the economic aspects of tariff and taxation, mobilization and demobilization, insurance, corporations, banks, stock exchanges, exhibitions, production at home and abroad, statistics, weights and measures. In addition the department will have the subjects of marine and inland shipping and fisheries. In outward organization the new department resembles our old combined Department of Commerce and Labor, when the Federal Trade Commission was not yet in existence and the Bureau of Corporations was simply one bureau in the department.

In the economic literature of the war period in Germany it is apparent that Germany is anticipating and preparing for intense competition after the war. For Germany reconstruction will have not only its obvious meaning and responsibilities, but she must reconstruct her whole overseas trade mechanism. In the past the German Government has not favored the use of German chambers of commerce abroad. During the war the Berlin Chamber of Commerce and the East Prussian Chambers of Commerce (needless to say, with Government approval) have extended their activities all over Poland and have organized branches and show rooms. The exhibition has always figured prominently in German trade promotion. A German industrial exhibition has been held in Switzerland in war time—not without misgivings on the part of the Swiss. In the Swiss press, as in the Dutch press, it has been stated that one feature of German commercial policy in the future will be “operating under a neutral façade.” The German Government has always been a shrewd bargainer in international treaties, and other countries have for years complained of chicanery in its customs laws and their administration. The German policies of ship subsidy and spe-

cially reduced railroad rates on goods that are to be moved by German vessels are well known. The German Government has already adopted its ship-subsidy arrangements for the period after the war, under the law of November 7, 1917, which puts a high premium on speedy rebuilding of the merchant marine. Some definite steps have been taken to improve the system of internal waterways in Germany, to facilitate trade, among which the Rhine-Danube project is the most pretentious.

FRANCE

Although the French writers have been among the most conspicuous in writing on trade topics during the war and in emphasizing the importance of after-war trade, the French Government has not yet announced any direct steps to be taken to strengthen the permanent French trade-promotion organization. The French Government has had other pressing problems to occupy it, but even with them there has been sufficient activity to indicate that the Government is well aware of the need for the support of trade. The question of reconstruction is, for example, very tangible in France, and it is one to which the French Government has devoted much attention. Investigating committees have made exhaustive reports on the reconstruction needs of the devastated districts, and the Government has taken steps to aid the work in every manner possible. The Paris, Lyons, and Bordeaux fairs have been encouraged by the Government. In fact, it has endeavored to assist the Lyons Fair to assume the proportions of the Leipzig Fair. The Bordeaux Fair has specialized on trade with the French colonies and has received the support of both the Ministry of Commerce and the Ministry of Colonies. Another feature of trade promotion in France in war time has been the formation of such organizations as the Association Nationale d'Expansion Économique, under the leadership of the official Paris Chamber of Commerce. This association is working on basic lines, starting out with a survey of French industrial resources, with particular reference to exportation, and working with the Ministry of Commerce and the National Office for Foreign Commerce in vigorously promoting export trade, stirring up interest among all French manufacturers, and otherwise endeavoring to see that France is prepared for the after-war period.

In the official trade-promotion organization of the French Government the National Office for Foreign Commerce is the chief factor. It works under the direction of the Ministry of Commerce but does not rely exclusively on the Government for its funds. The official chambers of commerce and other public, semi-public, or private organizations contribute to its support. It was established in 1898, with the charge of supplying trade information and promoting the foreign and domestic and colonial trade of France. It receives the trade reports of the consuls, commercial attachés, and other diplomatic representatives, the foreign-trade counselors, and the French chambers of commerce abroad. Ordinarily it issues the *Moniteur du Commerce Extérieur*, resembling in form and contents the British Board of Trade *Journal* in its new form. The publication of the *Moniteur* was suspended in 1914, but late in 1917 it was announced that publication would soon be resumed. In the meantime the monthly organ of the Association Nationale d'Expansion Économique was furnishing trade information somewhat on the lines formerly followed by the *Moniteur*.

Conspicuous in the French trade-promotion organization have been the official chambers of commerce in foreign countries. Since 1883 there have been 36 of these chambers established in foreign countries. They were mentioned by Yves Guyot, the famous French economist and former Minister of Finance, as a great power for good, provided they are headed by men of broad enough vision to welcome all good Frenchmen truly interested in promoting French trade interests. Some of the French chambers have been a failure, and others have achieved success. The chamber at Alexandria, Egypt, the oldest, has been one of the liveliest. Chambers on the west coast of South America have done some excellent work. The chambers assert that when the French Government, a few years ago, appointed some commercial attachés, it was with the idea that the attachés could take the place of the official chambers of commerce. The chambers have received a very slight amount of financial support from the Government. During the war it has been urged that the chambers ought to receive increased support, so as to enable all of them to be active, maintain permanent secretaries, and publish bulletins. It has been urged further that there is room for both the commercial attachés and the chambers, that the number of attachés ought to

be increased, and that the offices of the commercial attachés ought to be in the official chambers of commerce. As it is, the chambers of commerce abroad continue to make reports for the benefit of the Foreign Office and the National Office of Foreign Commerce, and upon request for domestic chambers of commerce and individual French business men.

The official chamber of commerce abroad and the commercial attaché are so well established in the French trade-promotion service that it will not be surprising if they are both given increased support in the after-war organization of the service. Now that there are so many big men in France working to promote French trade (men like Messrs. Hauser, Clémentel, Boret, and Lemery, for example), there is little doubt that the French trade-promotion service at home and abroad will be overhauled and materially strengthened. The French Government has made a particular study of the reorganization of the British trade-promotion service and the new Department of Overseas Trade and may work out on somewhat similar lines a scheme of its own.

JAPAN

The Commercial Museum.—The Japanese Government is one of the most active in promoting the foreign commerce of its manufacturing industries. Since 1890, when the Chamber of Commerce law first went into effect, between sixty and seventy chambers of commerce have been established within the Empire, possessing a certain official status. The principal medium of the trade-promotion work under the Department of Agriculture and Commerce of Japan has been the Commercial Museum in Tokyo, with which are allied the thirty-seven other commercial museums in other cities. The main Commercial Museum and to a less extent the smaller ones have made a specialty of showing Japanese goods alongside of foreign goods with which articles of Japanese manufacture enter into competition. In 1917, when the raw-material question, in conjunction with the shipping question, took on critical importance, the Government Commercial Museum prepared some practical exhibits of raw materials of near-by countries which Japan is cultivating as outlets for Japanese manufactured goods. In its budget for 1918 the Department of Agriculture and Commerce carried an item of over 100,000 yen

(\$50,000) for establishing Japanese commercial museums abroad, beginning at Harbin and Singapore.

The Japanese have been foresighted, patient, and persistent in developing trade. In the *China Returns of Trade and Trade Reports* for 1915 the following significant statement appeared: "About 15 years ago a training college was established in Shanghai by the Japanese, known as the Tungya T'ungwen Shu-yuan, which was assisted by Government funds. The students, of whom there are at present about 300, are specially trained for work in China. The college course lasts for three years, and 900 students have already passed through and are now at work in different parts of China, pushing their country's commercial interests. A large site has been secured at Siccawei, and new and suitable premises are to be erected shortly. In 1908 the value of Japan's direct trade with China was Hk. Tls. 89,620,908 [about \$74,385,000], and in 1915 it amounted to Hk. Tls. 197,926,331 [about \$144,277,000], without including the unrecorded trade at Kiaochow during eight months of the year, probably worth another 14 millions [\$11,620,000], from which it would appear that results have fully justified Japanese methods of developing trade." The Japanese Government has similarly encouraged the education of young Japanese in the United States, in Germany, in France, in England, and elsewhere, to give them better equipment for representing Japanese interests. The Japanese have undoubtedly also derived benefit from having these trained men ready to fill missions as advisers in the governments of other Eastern countries.

New Markets in War Time.—During the war the foreign trade opportunity service conducted by the Commercial Museum became busier than ever, as Japanese Government representatives abroad and at home had inquiries for goods of Japanese manufacture to take the place of goods formerly purchased from Germany and Austria. In the summer of 1917 the Commercial Museum announced that efforts to extend the sale of Japanese products to new markets had been particularly successful in the following instances: woolen cloth to Asiatic Russia; cotton blankets to South Africa and Australia; cotton hosiery to England, Holland, Russia, South Africa, and Australia; gloves to England, China, and Russia; imitation Panama hats to England, China,

and Australia; printing paper to England, the East Indies, Australia, and Manila; porcelain to Australia; glass to Asiatic countries; toys to England, America, and Canada. Chief attention has been given to Australia, the Dutch East Indies, and Asiatic Russia, but it is not alone in the Pacific that the Government of Japan has been promoting trade. Government agents on trade-promotion errands have come to the United States and to the South American countries.

Rounding Out the Trade-Promotion Service.—Japan seems now to have recognized the importance of the permanent resident attaché abroad, specializing on commercial matters of national importance. In September, 1917, the appointment of commercial attachés to Great Britain, France, Russia, and China was announced in the press. Provision was made for the appointment of commissioners to act as deputies, and it was announced that there would be eight clerks attached to each of these missions. They were instructed to devote special attention to financial matters. Thus with consular service, special agents, and traveling trade commissioners (mentioned above) and with attachés and resident commercial commissioners, the Japanese Government has completed in the war period the generally recognized mechanism of official overseas trade-promotion agencies.

Commissions Abroad and at Home.—The Economic Commission from Japan to America, headed by Baron Megata and announced in 1917, is a type of the traveling bodies sent to foster mutual trade relations.

Probably the commission that is most important as concerns Japanese Government aid to trade as a whole, looking toward a vigorous after-war trade policy, is the Economic Investigation Commission, appointed in February, 1917. This commission consists of four sections, representing the departments of Foreign Affairs, Agriculture and Commerce, Finance, and Communications, with the Agriculture and Commerce representatives taking the lead in trade-promotion matters. By the end of April the commission had submitted a report on financing organizations for China and proposed the establishment of a colonial institution for developing South Manchuria and Eastern Mongolia, improvement of through traffic between Japan and other countries, adoption

of a protective policy for various products, increasing the domestic supply of fertilizers, standardization of quality of staple exports, readjusting merchant-marine tonnage, attracting foreign tourists, facilitating the supply of industrial funds, and the establishment of a financing organization for industrial enterprises. The commission was organized with a large staff. In the fall of 1917 it took up the question of means of retaining war trade. It has done a great deal to focus attention on vital economic problems.

Establishing Government Export Standards.—The action of the Japanese Government on the recommendations of establishing Government export standards of quality is an indication of the progressive course being pursued in foreign-trade matters. When complaints reached the Department of Agriculture and Commerce with increasing frequency as to the poor quality of exported merchandise, the prevalence of adulteration, and the absence of standards in many important lines, it became apparent that Government action was necessary. The Economic Investigation Commission made its report on the subject. In June, 1917, the Minister of Agriculture and Commerce said, "One of the reasons is to be found in defects of our industrial system. It is therefore necessary to perfect this mechanism by giving more financial assistance to the intermediate and lesser manufacturers. As to the prevention of the production of inferior goods, an improved institution should be founded on the basis of the existing trade guilds, making all the exports concerned subject to examination according to a certain universal standard." The Ministry of Agriculture and Commerce in general followed this idea of working through the trade associations. Regulations were issued by which the standards of quality were set, and the various trade organizations interested in the manufacture and sale of the commodities mentioned were organized into central associations for the purpose. Regulations were issued for matches, silk fabrics, enameled ware, glassware, and braids, and later for hosiery. Goods not coming up to the prescribed standards might not be exported. The inspection—that is, approval or rejection—was not left to the associations. On December 3, 1917, in issuing the hosiery regulations the Department of Agriculture and Commerce made the following statement: "Inspectors of quality will be

appointed by the Department of Agriculture, and the fairness and rigidity of examination and judgment will be fully maintained. There is no doubt that the new system will improve the quality of Japanese hosiery and enhance its reputation abroad." It was expected in Japan that the system of export quality standards would soon be extended to the other important lines. In fact, the Yokohama Chamber of Commerce recommended that a Government Inspection Office be established in every Prefecture.

AUSTRIA, ITALY, AND OTHER EUROPEAN COUNTRIES

Austria.—The quality of the trade-promotion work of the Austro-Hungarian Government has always been admired in other countries. The publication *Das Handelsmuseum* and the published separate consular reports prepared by the competent staff in Vienna and the men at the more important posts in the foreign service have had a recognized place in the literature of international commerce. During the war the Austrian Government has done much to encourage traffic on the Danube. The economists in Austria, like the economists in other countries, have dwelt continuously on the importance of promoting the export trade. The Royal Export Academy in Austria and the Balkan Academy in Hungary are training men for foreign trade positions. The government of Austria-Hungary is more than ever interested in developing the export trade to the Balkans. In a recent issue the *Oesterreichisch-Ungarische Finanzpresse* of Vienna urged the Government to strengthen the consular staff, so that in the consulates there may be men of practical commercial experience. The Government has been petitioned to adopt the policy of sending officials abroad to study commercial and industrial conditions and of subsequently attaching such officials permanently to the trade-information office in Vienna.

Italy.—The Italian Government has for years had commercial attachés, working under the Ministry of Commerce, in the principal embassies and legations abroad and has taken care to appoint energetic, well-trained men to those positions. It has also been fortunate in the selection of its consular officers in some of the principal new markets for Italian goods. In some trade

centers the Italian consuls are prominent in the consular circles and have worked successfully to advance Italian trade interests. Another important respect in which the Italian Government has of late years promoted trade has been in guiding emigration and keeping up a friendly interest in the Italian colonies in foreign countries. The Italian business men and the Italian agricultural settlers in South America have been a factor in building up Italian business there. The Italian Government has been proud of the growth of the Italian merchant marine and the Italian banking system and has given active encouragement to both. In Italy, as in other belligerent countries during the war, trade associations under Government auspices have been formed to facilitate the supplies of raw materials and to regulate production of important commodities for war purposes. The Ministry of Industry, Commerce, and Labor has thus come closer to the needs of the Italian manufacturing industry than it ever has before. The various industrial interests are continually impressing on the ministry the importance of aiding the industries in their efforts to get materials and to dispose of their finished products in the period after the war. Reference has already been made to the formation of the British-Italian Corporation and the Compagnia Italo-Britannica. The organization of these two important companies for the development of trade between England and Italy and for the development of Italian resources through British capital was favored by the Italian Government.

The Scandinavian Countries.—Of the three Scandinavian countries, Sweden has probably been more active in foreign trade promotion than either of the others, although both Denmark and Norway have separate ministries of commerce, whereas in Sweden the commercial interests have been primarily under the Board of Trade, which is simply one branch of the Ministry of Finance. In Sweden the Government has established two kinds of foreign trade scholarships—one designated "export bursaries," for properly trained young men to prepare themselves at home for export service, and the other "traveling trade bursaries," which are intended to facilitate practical training abroad for young men with the appropriate basic training and education. The Swedish Board of Trade has been entrusted by the Government with the selection of candidates and advising as to the need of the course to be

followed. In 1906 Sweden modernized its consular service, which is being gradually strengthened. On important trade questions the Finance Minister and the Foreign Minister have the assistance of an official commercial council of seven members who are leaders in trade, manufacturing, agriculture, and shipping. Sweden and Norway have issued illustrated hand-books concerning the commercial, industrial, and social life of the two countries.

Sweden, Norway, and Denmark have, of course, been vitally affected by the restrictions placed on trade by both groups of belligerent countries. In order to protect their national economic interests the three countries have each maintained large missions of trade experts, business men, and clerks in the capitals of the most important belligerent countries. These trade missions have done their work for the purpose of promoting their trade interests permanently as well as during the war. As an outgrowth of the war missions the Swedish Government has now appointed a permanent commercial attaché in Washington. In these three countries and in Holland the importance of overseas commerce has been brought into relief by the war, and the governments have of necessity done more to promote trade during the war than ever before. The associations of manufacturers and merchants have been constantly prodding the Government officials and following closely every step in Government policy and administration. Norway has already an organization for distributing essential materials. It is possible that the three Scandinavian countries will agree upon a common policy in this important matter. During the war the national industries not dependent on foreign supplies of raw materials have made great progress. There have been exhibitions of homemade products; the principal one, held at Fredericia, in Denmark, is an industrial sample fair modeled on the Leipzig Fair. The list of commodities of Danish manufacture displayed in the fair at Fredericia in 1917 is a revelation to any one who thinks of Denmark as only an agricultural country.

Holland.—Holland, with its highly important overseas colonies and its well-developed merchant marine, has for hundreds of years been one of the leading trading nations. The Government has always operated with the commercial interests of the country prominently in view. The Ministry of Agriculture, Industry, and

Commerce and the Ministry of Colonies, working with the Ministry of Foreign Affairs, have had the promotion of overseas trade as one of their principal activities. The eight Dutch chambers of commerce abroad furnish the Government with trade information. Government funds are available for foreign expositions of Dutch goods and for export scholarships for young men going abroad. There is a special appropriation for promoting trade with South Africa. The government departments coöperate with the important Maatschappij van Nijverheid (Industrial Company) formed to promote trade with the colonies. During the war there was added to the Ministry of Agriculture, Industry, and Commerce a fourth department, called the Department of Crisis Affairs, to attend to war trade matters. In December, 1917, an increased appropriation was made for the Commerce Department to strengthen it at home, make possible the appointment of commercial experts abroad, and enable the Dutch consuls to travel more extensively.

The Dutch East Indies and the Dutch Colonial Office have been active in advertising their products abroad, have issued some very attractive hand-books, participated in the Panama-Pacific Exposition, and now maintain an intelligence office and produce sample room in New York City.

YEARBOOKS, EXPOSITIONS, AND OTHER FORMS OF TRADE PROMOTION IN OTHER COUNTRIES

Many other countries, in and outside of Europe, have taken steps in the way of trade promotion. Spain has an official committee investigating economic conditions, but Spanish business men as a rule view with a certain disdain any announcement of proposed Government assistance. In China and in several of the Latin American countries semi-official chambers of commerce, modeled somewhat after the French system, have been established. Some of the governments have issued hand-books exploiting their lands and setting forth attractions for tourists and settlers and also endeavoring to promote the sale of their principal characteristic products. The yearbook is one of the accepted vehicles of trade promotion and national advertising. Another is the fair or exposition. In Brazil a permanent exposition of Brazilian products was established in 1916. The Brazilian

Government has also taken steps to popularize the use of coffee in foreign countries and to counteract the anti-coffee advertising of certain foreign manufacturers of coffee substitutes. In 1917 Costa Rica established an annual industrial fair. The Government of Siam in 1917 arranged that the Bangkok Fair take on an industrial aspect, Siamese arts and crafts being introduced as a specialty. In 1917 the Swiss Government gave material assistance to the Swiss sample fair held at Basel, and the first fair proved so successful that plans were made to erect a permanent building. During the war the great agricultural fairs in South Africa have also been broadened in scope to pay more attention to the industrial activities depending on agriculture. Industrial expositions in Chile were held at Santiago and at Punta Arenas in 1916, and the Santiago exposition was announced as permanent. In 1916 there was a national exhibition of Portuguese industrial products held under government patronage in the building of the Portuguese National Geographic Society. The fair, like the year-book, is a common vehicle of advertising the products of agriculture and manufacturing industries of a country and is a form of trade promotion which has universally claimed its position as a means of Government aid to trade.

OUR NEEDS FOR THE FUTURE

The United States has a good working mechanism for the promotion of foreign trade, and its needs are chiefly those of expansion rather than of reorganization. We have the question of divided control of foreign trade service—the State Department and the Commerce Department—but that is inevitable in any country where a real Department of Commerce is regarded as necessary. In practice our service has demonstrated that such division is not incompatible with harmonious relations and efficient work. The trade-promotion work in the past has taken place chiefly in Latin America. In the period immediately following the war there will be room for a great deal of trade investigation and other promotive work in the various European countries. The Mediterranean district, and in fact all of Africa, has not received much attention from our Government in the way of trade promotion. Likewise we have not devoted enough attention to India, the East Indies, and other sections of the Far East. We should have

an increased number of commercial attachés or resident trade commissioners in Europe, Asia, and Africa. Our consular service might well be strengthened by the addition of certain trade experts to give their entire attention to commercial matters in the consulates. We have, in our Bureau of Foreign and Domestic Commerce of the Department of Commerce, a nucleus for the development of the commercial attaché service and the resident trade commissioner service, as well as the traveling commercial agent service. In our Department of State we have a consular service that is probably better equipped for trade promotion than the consular service of any foreign country. The consuls, unfortunately, often have so many and so varied administrative functions as to be unable to devote much attention to trade. In addition to having the resident commercial attachés and resident trade commissioners whose field of activities covers an entire country or a group of countries, we ought to take steps to strengthen the trade-promotion service in the individual consulates, on which we must depend for detailed local information. This strengthening of the resident foreign service, both locally, by means of the consulates, and nationally, by increasing the number of commercial attachés, is to my mind the best thing our Government can do to improve its present mechanism of trade promotion abroad. Foreign trade-promotion work within the United States and the distribution of foreign-trade information supplied by consuls as well as by the Department of Commerce representatives abroad is entrusted to the Bureau of Foreign and Domestic Commerce, which is also the central statistical office for foreign-trade statistics. Our Government appropriations for trade promotion have been increased every few years, but very cautiously and by very small amounts. The time has now come when demands for the trade-promotion service are increasing heavily. If our Government is to continue to render trade-promotion service adequate to the increased requirements of our industries and commensurate with the reinvigorated activities of other great nations, there will need to be a liberal increase in appropriations.

XVII

FINANCING OUR FOREIGN TRADE

BY HENRY E. COOPER ¹

Vice-President, the Equitable Trust Company of New York

INTRODUCTION

The most important stage of the economic life of a country is reached when, with its agricultural and mineral resources well developed and its industries capable of producing over and above its own needs, it begins to invest surplus capital in other countries that are in need of it. It is through this export of capital for the double purpose of securing better returns and of creating permanent consumers in foreign markets that the foreign trade of a country is definitely established.

CHANGES BROUGHT BY THE WAR

The war has at one stroke changed the economic aspect of the world, and America has become over night, as it were, the chief provider of the belligerents.

How important the shipments of all kinds of materials to the Allies have been is best illustrated by the figures given out by the Bureau of Foreign and Domestic Commerce. The trade balance in favor of the United States from the beginning of the European war to March 1, 1918, was \$8,878,004,669. Not only has America been a vast storehouse from which the Allies could procure all the raw materials they needed and an immense factory which turned out finished products of all descriptions, but it has

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also become a big banking house which extended loans and financed the purchases of the Allies.

There is no doubt that some of the conditions brought about by the war will persist with the return of normal times. America will, perforce, have to supply the immediate demand for finished goods which will be wanted in those countries where all activities for the last few years have been devoted to the prosecution of the war, and she will have to continue her exportations of raw materials.

America's position as a provider of both materials and capital is now universally recognized, and the chairman of the Barclay's Bank of London in a recent address declared: "America produces in raw materials and in manufactured articles nearly, if not quite, all that the British produce. Moreover, she is no longer indebted to England; on the contrary, she has repaid her debts to England and is now a creditor country as regards ourselves." Having started on her financial career, America is not likely to discontinue her activities as a money lender. It is probable that for years to come it will be customary to look to New York whenever a great transaction has to be financed or when new enterprises call for capital. America undoubtedly has to prepare to meet the demands which will be made upon her.

ADJUSTMENTS UNDER CONSIDERATION

In all the leading countries of the world there is a tendency to adjust existing conditions to meet the changes which the war will have brought about.

In England.—In England the Joint Department of Overseas Trade has begun its work. This department has been jointly formed by the Foreign Office and the Board of Trade and will be represented in Parliament. The new department will receive reports, undertake inquiries, and assist in constructive overseas work through the services of trade commissioners, commercial attachés, and consular officers.

That it will be necessary to do much in regard to financing foreign trade has been demonstrated by the project to create the British Empire Bank of Industry, whose object it would be to strengthen and to extend the British producing and manufacturing

industries and to help them in financing their foreign trade activities. Furthermore, the British Trade Corporation was formed by Royal Charter on April 21, 1917. This corporation has for its purpose the carrying on of the business of trading and banking on most extensive lines in any part of the world. It proposes to coöperate as agent with the Government or with any bankers, manufacturers, merchants, shippers, and others, to carry on business as contractors, merchants, traders, or promoters on its own account or in partnership, to acquire and hold any interest in any commercial, industrial, or financial enterprise of any kind and in real estate, to act as trustee, etc. But the two most interesting objects of this \$50,000,000 corporation are, first, to establish and maintain information and investigation bureaus to undertake experimental and research work, and second, to become an agent for the representation of British interests so far as relates to trade and finance, in cases where the Government is desirous that British capital shall participate in financial operations.

Besides, British bankers are keenly alive to the necessity of adapting their banking facilities to the prevailing conditions. For instance, two important South American banks owned by British interests have arranged lately to have direct representation in Manchester in order to offer their Manchester clients all the facilities of shipping, exchange, and agency departments. The banker in England proffers to the business man not only his financial assistance but also his knowledge and experience of overseas conditions.

In France.—In France the Government and groups of public-spirited citizens have created a number of associations which aim to bring nearer to the citizens the importance of foreign trade. Among these associations we may name the National Association of Economic Expansion, whose object is to assist in the establishment of new industries and the finding of new outlets abroad; L'Exportateur Français, whose purpose is to educate French manufacturers in export trade; the Comité France-Amérique, for the development of commercial relations between France and America; the France-Latin American Association, especially interested in furthering French trade with South America; and the National Union for the Exportation of French Products and the Importation of Raw Materials, whose object is to estab-

lish coöperation for the necessary and desirable after-war purchases and sales. The French Minister of Commerce, addressing the members of the National Association of Economic Expansion, recently made this remarkable statement: "In order to secure economic expansion, it will be necessary for the Government to give you its aid. The first and most important means which the Government will have to take recourse to will be the creation of a bank to finance exportation, a bank which will be in a position to discount bills of six, nine, and twelve months. Experience shows that certain markets, in spite of all efforts, have remained closed to business men who refused to allow credit facilities. Our enemies have frequently beaten us with only this weapon, credit. I am trying, in coöperation with the Minister of Finance, to prepare the creation of a central credit institution for foreign trade."

In Germany.—In no country in the world has the necessity of a well-planned credit policy been better understood than in Germany. It is needless for us to describe what Germany did before the war. Now she prepares for the after-war period, and with characteristic thoroughness the Imperial Commission of Transition Works has laid down the foundation on which to rebuild the shattered economic structure of the German Empire.

A new German Export Bank has been established to place acceptance credits at the disposal of export firms to enable them, with the removal of the prohibition of payments to foreign countries, to redeem their credits there. It will grant commercial credits for incoming and outgoing consignments and advance money on consignment. It will establish branches in foreign commercial centers where no German banks hitherto existed, will operate through neutral banks in colonies of enemy countries, and may tender bids for construction or installations which might have been in German hands if there were means of financing them.

Furthermore, it has been reported that there exists in Germany a form of insurance company which, for a commission of about 4 per cent, guarantees approved long-dated bills of foreign trade. It guarantees, for instance, to the German manufacturers the due payment of bills accepted by Russian purchasers. The creation of such a financial institution would undoubtedly encourage the granting of credit in the export trade. The insur-

ance company would have on its books, through its agents and branches, firms in foreign countries to which it could give an insurance credit of a certain amount and so facilitate the granting of desired credits. The bills endorsed by the insurance company would become easily marketable securities, and they would become negotiable instruments with the discounting privilege of the ordinary joint stock bank when they approached the last six months of maturity.

In Austria.—Austria follows as well as it can the policy of Berlin. Austrian banking institutions are trying to raise capital for enterprises and even preparing to create organizations with a special view to foreign trade. From Paris we hear that the Kreditanstalt, the Bodenkreditanstalt, and the Austrian Anglo Bank have furnished a capital of 15 million crowns for the creation of a foreign trade corporation.

In Neutral Countries.—One must not believe that the neutrals have looked quietly upon all these efforts made by the belligerents. A typical example of the preparation of European neutrals is to be found in the measure adopted by the progressive Dutch Government, which has granted the Netherlands Bank up to 20 million florins against loss suffered in foreign trade transactions. Moreover, a Dutch International Trading Bank has been established at The Hague to promote Dutch industries and trade by financing commercial and transport undertakings, to create new industrial companies making articles for export, and to negotiate public concessions for mining and transport and raising financial credits therefor. In Sweden the Finance Minister has proposed the creation of a Government fund for the operation of a company to support foreign trade after the war, and especially to arrange for the import of necessary goods. The capital stock is to be guaranteed by deposit of Government bonds.

CONDITIONS TO BE MET DURING TRANSITION PERIOD

Finance has been very often described as the handmaid of industry and commerce. Indeed, it is the object of the financier to serve the producer of raw materials and of finished goods and to help him to place these goods upon the markets of the world.

310 AMERICAN PROBLEMS OF RECONSTRUCTION

The banker must watch closely the economic life of the community and must always be on the alert to adapt himself to new conditions. If the bankers of America had not followed the industrial progress of the country, many a thriving and prosperous plant would not exist to-day. If now the manufacturer is required to find for his goods an overseas market, there is no doubt that the banker will have to follow this manufacturer on the new path. For that reason, precisely, the banker must study the conditions which are brought about by trading with foreign parts, and he must act not only as the provider of credit to finance overseas transactions but also as the practical adviser of the exporter.

One of the most important duties of the banker will be to learn how to adapt the credit he allows to the necessities of trade. In fact, to quote Sir Edward Holden, "The banker is a manufacturer of credit," and, like all other exporting manufacturers, the banker, whenever he exports his product, must comply with the customs and desires of those whom he supplies. In overseas transactions, in which a great length of time elapses before the goods reach the buyer, it is often necessary to allow credits of unusual length. It should be remembered that the activity of exporters is proportionate to the length of credit. Furthermore, the credit facilities offered by the international banker must be adapted to the prevailing customs in the particular countries. The French consul in Manchuria describes in a report how the Germans were always mindful of the several calendars which prevail in that country when they offered their goods to the natives. The American banker, in lending his credit, will have to see that he meets the requirements of the country to which his credit goes.

The economists and financiers of the world recognize the fact that before the economic life of the world will again become normal, we shall have to go through a transition period, the length of which it is not easy to determine. Georg Bernhardt, the German economist, thought at one time that it would not take Germany more than three years to restore her pre-war state of affairs; now he declares that fifteen years will be required to bring about an approach to normal conditions. Similarly, the Reconstruction Ministry in England is much concerned with the duration of this transition period. In this connection a host of questions arise. Let us for the moment consider only those questions pertaining to the financial aspect of our foreign trade.

EXCHANGE VALUE OF THE DOLLAR

The question of paramount importance naturally is the rehabilitation of the exchange value of the American dollar to its normal pre-war rate. We are sure that this problem will be solved without great difficulty because our exports, unhampered by war restrictions, will favorably influence our trade balance. Moreover, the value of the dollar has been brought down in certain neutral markets not as the result of the normal laws of demand and supply, but as the result of the support given in New York to sterling exchange while British financiers neglected or were unable to provide a similar support in other markets. This situation naturally stimulated the activities of arbitragists, especially in Spain, who seized the opportunity to sell sterling on New York, thus causing a decline in dollar exchange.

Whenever the dollar shows weakness, it will after the war be an easy thing to reinforce its strength by shipping gold. Besides, if the dollar exchange, for some unexpected reasons, remains weak even after the resumption of our exports and the shipping of a certain amount of gold, a possible remedy could be found by raising foreign loans, which would be facilitated, if necessary, by having the United States Government borrow all foreign securities owned and held at the time in America. Similar measures have already been taken both in England and in Germany. However, our ample gold reserve may make this unnecessary.

THE BANKER'S SHARE IN THE REHABILITATION OF TRADE AND INDUSTRY

Immediate after-war problems will be primarily of an economic and industrial character. The banker will have to lend his capital for the rehabilitation of trade and industry, including those lines which will seek overseas markets. His ministrations will be manifold. He will have to tide the struggling concerns over the difficult transition period, and his capital will be called upon to transform war industries to a peace basis.

A great number of plants all over the country will have to be, as it were, entirely re-created. The munition plant will give

way to the agricultural-implement factory. It will be our duty to utilize further, for the best advantage to the country, every ounce of energy which went to the service of the war. But the banker will be called upon not only to readjust existing industries to new conditions—he will also be given opportunities to advance capital for the reconstruction of destroyed property and for the rehabilitation of commercial enterprises which have suffered under the stress of war.

BASIS OF OUR FOREIGN TRADE

During and after this transition period we must realize the position of those countries with which we intend to do business. The United States has become, as a result of the war, the premier creditor State of the world. Every year there will flow to America enormous sums in payment of interest on the loans which she has granted. These countries will have to obtain credit to buy from us during the transition period such finished goods as they need. Moreover, they will have to continue as before to turn to America for many of their raw materials.

The economic welfare of all these countries is of paramount importance to enable them not only to honor their debts but also to become customers of the United States. We must, therefore, welcome importations from those countries which owe us money. Some of these debtor countries will be able to pay their debts by sending us their materials and products. It would be a sound policy for the American banker to finance such importations. Foreign trade does not mean solely exportation. For example, England's power of absorption of foreign merchandise and products is directly responsible for her world-wide trade. Traders of all nations sold goods to England and drew bills on London against the claims thus created. To avoid having recourse to the transfer of funds, which always involves expense and some risk, the world traders preferred to buy goods from her, and to settle their accounts they bought bills on London. The bill on London became thus familiar and welcome all over the world. The huge imports and the consequent exports established the supremacy of sterling exchange.

Exportation alone will not solve the mighty after-war problems. The slogan "Don't import; export!" has been in fashion

abroad. More deeply thinking economists have well shown the delusion of such a program. If all the countries of the world were to follow the watchword "Don't import; export!" an impasse would follow. Which country would be left to consume all the exports from the other nations?

As long as normal trade is being transacted in the world, foreign trade will be an exchange of necessities and an exchange of values. It is, therefore, as necessary for the banker to finance imports as to finance exports.

It is probable that the major part of our exports will consist of raw materials, as the demand for them will be very great, when trade is no longer hampered by war conditions. As a rule, the banker of the foreign buyer ought to finance transactions of this kind; it is quite normal for the banker of the Manchester cotton manufacturer to finance a purchase of cotton in America. But more and more it will devolve upon the American banker to finance even such exportations of raw materials. The scope of financing foreign trade will undoubtedly be widened after the war.

INTERNATIONAL ACCEPTANCE MARKET

If we really want the American banker to enter definitely upon the field of international finance, it will be an absolute necessity to develop a ready market for international acceptances in the United States. The bill of exchange drawn on New York should some day have a position in international commerce and finance comparable to that of the bill of exchange drawn on London. The London financial machinery included innumerable private firms and offices of foreign and colonial banks which completed and strengthened the chain formed by the joint stock banks around the Bank of England. This organization gave her the best possible market for absorbing international trade acceptances before the war.

Our own situation, however, has recently greatly improved. It is true that the Federal Reserve Act has yet to be perfected, but nevertheless, even in its present form many experts prefer it to the British system. While perhaps too limited as yet in its permissive powers as related to foreign bills, it has nevertheless furnished the power of acceptance to our banking system. It now devolves upon our bankers, individually and collectively, to make the best of

their opportunity. In this connection we believe that through the instrumentality of the Federal reserve banks, financial institutions all over the country should take an active interest in international acceptances. In other words, the Federal reserve bank, which is ready to undertake the function of the Bank of England, and the pioneer banks of our big commercial ports, which are ready to perform the duties of the joint stock banks, should be backed by all the other banks throughout the country. The latter, by assuming the functions of the British private banks, would create a ready market for the absorption of foreign acceptances. This coöperation is necessary, as our national banks and trust companies cannot operate chains of agencies such as extend the absorbing power of the British joint stock banks.

In this field of foreign acceptance activities, the recent formation of two banking corporations with the specific object of dealing in bankers' and trade acceptances, or, in other words, of fulfilling in New York the functions of the London discount companies, is an innovation which promises greatly to improve our own discount market for foreign bills.

Another important step forward was taken when, through the Federal Reserve Act, any national bank or trust company having a capital and surplus of a million dollars or over was authorized to establish foreign branches, and when any national banking association was allowed to subscribe an amount not exceeding 10 per cent of its capital to stock of banks organized to transact foreign banking business. This last measure gives all national banking associations an opportunity to participate in fostering foreign trade. Their full appreciation of this opportunity is best proved by the establishment of several such banks owned in whole or in part by groups of national banks. One of them has now forty-eight national banks as stockholders.

To complete the chain, Federal reserve banks themselves have been authorized to establish and maintain agencies in foreign countries as well as to buy and sell bills of exchange. However, the regulations of the Federal Reserve Act restricting the eligibility for purchase by the Federal reserve banks of bills of exchange, trade and bankers' acceptances to those having a maturity at the time of purchase of not more than three months and limiting the acceptance by member banks of drafts and bills of exchange to those documentary bills having not more than six

months to run could and should at the opportune time be extended to longer credits, so as to allow American banks to meet foreign competition in far-away markets.

When once educated to the desirability of foreign acceptance, the American bankers throughout the country will readily purchase paper for which there is a demand all over the world. If America becomes prominent in foreign trade, there will be everywhere a great demand for bills drawn on New York. Numberless will be the bills of exchange drawn on American firms to finance trade transactions between America and foreign countries. The banker who first of all looks for safe investments for his funds will gladly buy international acceptances. But the banker wants his investments to be readily marketable, and he will turn to international acceptances only if he feels sure that they will be taken up easily.

INTERNATIONAL CREDIT INFORMATION

Another essential requirement of foreign trade, perhaps the most important, is efficient international credit information. One must constantly keep in mind that the basis of foreign trade is to be found in the soundness of credit conditions, not only within our borders but also abroad.

The fundamental basis of credit is an efficient information system, which can be established only by direct contact with the prospective clients. In our local banking we have applied the advantages of contact between the banker and the clients. This direct and personal contact should be extended to transactions in foreign lands by sending to those lands capable and responsible representatives who would gather and forward the desired credit information.

EXPORT OF CAPITAL

The rôle of the banker must not be to provide simply the necessary capital or credit for the financing of individual transactions. A transaction represents only a single deal. Foreign trade brings nations together and binds them in the pursuit of common interests. Our international bankers, therefore, must establish the permanence of the country's trade relations abroad

either by granting continual credits to those engaged therein with their own capital or by investing their own or their clients' capital in American-owned or foreign-owned enterprises located abroad.

Countries which have attained a high degree of development always export a great amount of their capital. They find in foreign railways, mines, electrical plants, etc., excellent opportunities for investment. It is probable that after the war the belligerents will for a considerable time be occupied in rehabilitation and will not be able to divert their capital for the benefit of foreign countries. The United States will probably be in a better position than the other belligerents to export capital, and she should utilize this opportunity. A number of American banks have lately shown their intention to establish themselves in foreign countries and to investigate proposals which might attract the money of the American investor.

In this latter activity the banker acts as a guide to the investor. He bears a moral responsibility and will therefore have to study international affairs and conditions closely. In some countries the investor follows the advice of the big banking institutions almost blindly, and many millions have been lost as the result. When a banker floats a loan or underwrites an issue, he gives the moral guarantee of his name thereto. It is therefore necessary for a country which is going to play an important part in the economic affairs of the world to be guided by financiers whose education and training is international. However gifted a man may be, he will never be able to gauge competently the state of affairs in central Africa, for instance, from his desk in Wall Street. The Britisher has become the first international banker of the world because he left his city office and went in person to those countries where there was a demand for his capital.

THE BRITISH EXAMPLE

Wherever the English colonized and wherever they created a sphere of influence a banking house was established. The master of the ship that sailed into the tropical harbor under the British flag was met not only by His Majesty's consul but also by the agent of a London banker.

In 1913 it was estimated that the total British investments in

Argentina alone amounted to \$1,551,000,000. In 1915 the total British investments outside of the British Isles were estimated to exceed \$20,000,000,000, out of which nearly \$2,000,000,000 was invested in trading and financial companies outside of the United States and Canada.

Aside from their great banking institutions located and operating in the British colonial empire or dependencies, British banking interests are looked after in the Near East by the Ionian Bank, with seventeen branches, the Anglo-Palestine Co., with eight branches, and other less important institutions; in the Far East by the Chartered Bank of India, Australia & China and the Hong-kong & Shanghai Banking Corporation, with thirty branches; in South America by the Commercial Bank of Spanish America, the British Bank of South America, the Anglo-South American Bank, the London & Brazilian Bank, the London & River Plate Bank, and others.

Of course, mention should be made also of British capital invested abroad in mining, industrial, and commercial enterprises, but space does not allow us to make even a selection of the most important British companies in this class.

THE GERMAN EXAMPLE

Germany has also, in a most remarkable manner, built up her international financial organization. Spurred by her envy of British trade supremacy, she has endeavored, in the last twenty years, to secure for herself a world-wide financial organization which before the war spread like a network over the two hemispheres. Forty years ago Germany was still an agricultural State, and her exports were negligible. Her progress in the technical and chemical fields enabled her to place upon the market products which were eagerly taken up by the foreign buyers. The German banker, more than any other in the world, understood how necessary it was to help the producer of goods, and it was not unusual in Germany for the banker to go into effective partnership with the inventor of a new device.

Mr. Hauser, professor at the University of Dijon, well describes the solicitous care of the German banker for the interests of trade and commerce. Many a merchant or manufacturer de-

siring to extend the field of his activities went to his banker for financial help, as well as for economic advice. If the business seemed to be interesting, the banker not only was ready to discount a bill or to finance a shipment; he took a more complete interest in the business and, becoming almost an associate of his client, mapped out the departments of an important business organization. This collaboration between banker and business man is at the bottom of Germany's pre-war economic success. The banker, knowing the importance of credit, enabled the exporter to allow liberal credit facilities. Thanks to this magic wand, credit, Russia and South America became excellent customers. The organization of the Imperial Consular Service all over the world was put at the service of the German importer. The consul was not satisfied with sending to his chiefs in Berlin perfunctory reports on crops or social legislation: he inquired into the merits of this or that firm with which the German exporter was in business relations; he passed upon the merits of the notes accepted by the foreign buyers, and notes which were thus guaranteed by consular approval were naturally readily discounted by the German banker. But if the German banker had stayed at home he would never have been able to finance in a thorough and sound manner the overseas business of his customers.

By the creation of branches, *Töchterbanken*, all over the world, the mother institution reached out for new business. In Belgium the Brugman Bank of Brussels was absorbed by the Deutsche Bank; the Compagnie Commercial Belge is controlled by the Diskonto Bank. One knows how the German financier, through the Banca Commerciale Italiana, founded in Milan in 1894, thanks to the coöperation of the Deutsche, the Diskonto, the Dresdener, the Schaafhausener banks, and the Berliner Handelsgesellschaft, took hold of industrial northern Italy. The Diskonto and Bleichroeder conquered Roumania (Banca Generala Romana). In 1905 the Diskonto created the Kreditna Banka of Sofia. The Deutsche Orient Bank, in coöperation with the Deutsche Levante Linie, established branches in Asia Minor, Persia, and Morocco. In 1871 the Darmstadter created the Amsterdamsche Bank. In South America German banks have not been less active: the Banco Alemán Transatlántico has more than twenty branches,

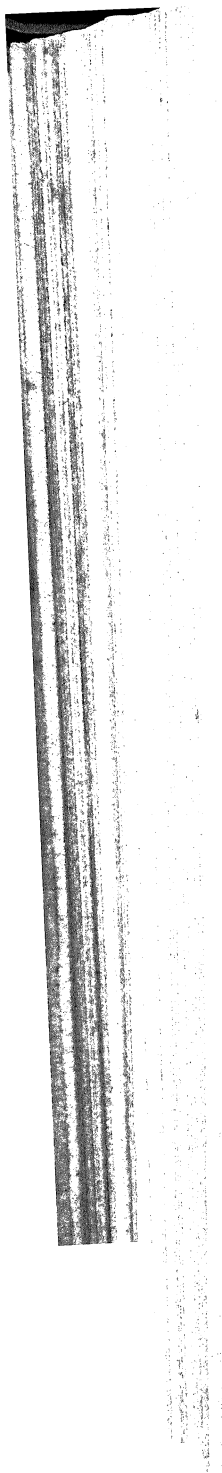
CONCLUSIONS

Being everywhere on the spot, the British and German bankers are in a position to form a clear judgment; they do not have to rely upon information files or correspondence. And there, precisely, is the advantage of a banking organization which is world-wide in its scope.

The American banker after the war will doubtless coöperate with the American exporter. If his coöperation is to be useful he will follow the exporter in foreign countries. He certainly can discount international acceptances in his New York office, but if he is to render constructive service of constant and far-reaching character he will have to get into direct touch with the foreign markets.

Mr. Ansiaux, the Belgian economist, has perfectly described the activities of the great German bank before the war. This bank, he says, is a pioneer of exportation which creates almost everywhere in the world points of financial support that may be compared to those coaling stations with which England has dotted the route from the Indies. Indeed, the bank is the pioneer of exportation because without financial help the exporter would be helpless. The American, in his quest for foreign outlets, must be guided by his banker. Only when he finds abroad American banking houses, American-controlled institutions, or at least American banking representatives, will he feel sufficiently protected to start out on an energetic foreign trade policy.

NOTE.—The description of measures taken or contemplated by European countries has been based mainly on official information (Board of Trade *Journal*, *Commercial Reports*, etc.). We are also indebted for certain data to the *London Economist*, *The Statist*, *L'Économiste Français*, *L'Économiste Européen*, etc.



XVIII

STABILIZING FOREIGN EXCHANGE

BY ROBERT L. OWEN¹

United States Senator from Oklahoma

FACTS

Introduction.—The dislocation of exchange rates as a result of the war has inflicted great inconvenience upon American importers and exporters. This has brought about a closer study and analysis of the foreign exchange situation by those interested in foreign commerce. Further, the tremendous volume of the export business resulting from the war has focused the attention of American merchants upon the mechanism of foreign commerce and has brought to light the lack of financial facilities for its conduct.

Trade Balances and Exchange Rates.—In normal times some countries have an excess of exports of commodities over imports of commodities, and others an excess of imports over exports. Those countries that sold more than they bought find that they have an excess of international drafts or bills against foreign countries, convertible at option into terms of foreign currency, and they find also that there is no scarcity of such international drafts or bills in their domestic currency wherewith to settle for their imports—for example, if the United States ships more goods to Holland than it imports an excess of drafts on Holland banks will be for sale with which to pay for goods imported. Holland

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322 AMERICAN PROBLEMS OF RECONSTRUCTION

exchange will then fall below par, and vice versa. Excess of exports normally results in a rise in the rates of exchange above the gold parity. The reverse holds true in the case of an excess of imports. But the transfer of credits or gold or securities will, of course, affect the exchange in precisely the same way as the shipment of commodities.

The war has developed a peculiar situation. On the one hand we find that countries like England, France, and Italy, which have been importing more from the United States than they have been exporting to it, have a rate of exchange which is unfavorable as compared with the dollar. However, there is another group of countries, including Holland, Switzerland, Spain, Norway, Sweden, and Denmark, which, like England, France, and Italy, import more from America than they export to her, but in which, strange to say, this condition has been attended by the depreciation of the dollar in terms of the neutral money. The dollar should be at a premium with respect to the neutral currencies as it is with respect to the currencies of our Allies. The following table presents the facts about the foreign trade of the United States strikingly:

FOREIGN TRADE OF THE UNITED STATES FOR THE CALENDAR YEAR 1917

[Figures in millions of dollars]

	Ex-ports	Im-ports	Balance of trade	
			Favor-able	Unfavor-able
Europe.....	4,054	551	3,503	.....
North America.....	1,265	872	393	.....
South America.....	312	599	.....	286
Asia.....	431	758	.....	327
Oceania.....	117	99	18	.....
Africa.....	51	73	.....	22
Total.....	6,230	2,952	3,279	735

EXCHANGE RATES IN PRINCIPAL COUNTRIES SHOWING A FAVORABLE BALANCE OF TRADE FOR THE UNITED STATES

	Trade (in millions of dollars)			Par	Exchange rates, Dec., 1917		Value of the dollar
	Ex-ports	Im-ports	Excess of ex-ports		Favor-able	Unfavor-able	
Favorable exchange:							
France.....	941	99	842	5.18	5.74	.....	\$1.108
Italy.....	419	36	373	5.18	8.46	.....	1.633
Russia in Europe....	315	12	303	51.46	12.75	.....	4.036
United Kingdom....	2,001	280	1,721	4.86	4.76	.....	1.021
Unfavorable exchange:							
Denmark.....	32	1	31	26.8	.....	31.50	.851
Netherlands.....	91	23	68	40.2	.....	43.50	.924
Norway.....	63	6	57	26.8	.....	32.8	.818
Spain.....	92	37	55	5.18	.....	4.08	.788
Sweden.....	21	18	3	26.8	.....	33.67	.706
Switzerland.....	20	20	....	5.18	.....	4.37	.843

Exchange rates cannot depreciate below the cost of shipping gold if the market is free. In normal times if the English pound sterling, for instance, declines to \$4.81, or 5 cents per pound (about 1 per cent), it becomes worth while to ship gold to the United States—that is, to buy pounds, which have a gold parity of \$4.865, at the low price of \$4.81. Owing to the increased cost of war insurance, transportation, and other incidental charges connected with gold shipment, the gold shipping point has declined to about \$4.76, at which the pound has been maintained for some time. In other words, if gold moves freely, it is an automatic corrective of fluctuating exchange rates.

Exchange rates which are either above or below par, as a result of an excess of exports or imports, respectively, can be corrected by the flow of commodities, gold, securities, or loans. These loans may either be bonds or short-time paper or bank balances placed by the creditor country in the debtor country. All these methods have been used in times of peace. The interference with shipping goods under war conditions, the embargo on gold, the difficulty of placing securities in creditor countries, legal impediments in various countries against the flow of credits by long-

term or short-term loans have all conspired to interfere with the normal laws of exchange. Any remedy which can be proposed to restore exchange to par must involve the return to one or more of these forms of international credit adjustment.

THE EVILS OF THE PRESENT SITUATION

Instability.—Modern business is characterized by the anticipation of future conditions. The time element is vital. In olden days, when business was confined to spot transactions, fluctuating monetary standards caused little trouble. To-day, however, change in any of the elements which cannot be estimated may inflict a great loss upon the merchant and unsteady the entire industrial situation. Just as in domestic affairs fluctuation in the purchasing power of the dollar would inflict loss on one class and unjustly benefit another, so in foreign commerce an unstable purchasing power of the dollar is equally harmful. Now, an abnormal exchange rate, whether it is above par or below par, must be unstable. The point of equilibrium is parity, a figure which represents the value of the gold in the unit of foreign currency. Under present conditions the average merchant, instead of working on solid ground, is trying to operate in a rocking boat. He therefore cannot commit himself to any large transactions and bank with confidence on the future but instead must buy from hand to mouth, a method which is unprofitable to himself and costly to the community which he serves. If for no other reason than the stabilizing of industrial conditions, there would be ample justification for bringing foreign exchange rates back to par. Our Government has the power and the imperative duty to bring and keep the dollar to gold par throughout the world.

The Harm to the Community.—When foreign exchange rapidly fluctuates, the consumers suffer from unjustly fluctuating commodity prices, due to the depreciation of the American dollar in terms of foreign currencies and its fluctuating purchasing power. In other words, in times of war, when we are restricting our purchases abroad to the minimum of essential requirements, a depreciation of 40 per cent in the dollar means an additional burden. Note particularly that this burden does not fall especially on the rich, for imports of articles of luxury are pro-

hibited, but on the average consumers. It is a burden of the most unjustifiable kind, affecting the essentials or the necessities of life, which already are pressing heavily enough.

In other words, if with the neutral countries with which we have transacted foreign trade amounting to \$450,000,000 we lost, say, 25 per cent as a result of the fall of the dollar, it means that consumers in the United States are paying \$100,000,000 more for merchandise than they would pay if the dollar brought all that the gold in it would bring. In war time particularly is the harm felt the most. For every dollar that we waste then, whether it is in useless purchases or in excessive prices due to depreciated dollars, is just that much money taken out of liberty loans or out of funds available for war expenditures. The community has less money for war needs. A dollar depreciated with respect to foreign exchange can be justified as little as was the depreciated currency with which we had to transact our business after the Civil War. We gloried in the "resumption of specie payment" after the war, which was simply bringing the domestic dollar to gold par. It is of identical importance in our foreign trade to bring the American dollar to gold par.

The Loss to the Individual.—In addition to the unsettling effect upon a community as a whole, the individual business man affected by unstable foreign exchange rates suffers most unjustly. He has imposed upon him not only the ordinary difficulties incidental to conducting business in war time, but the entirely unnecessary burden due to the need for constantly adjusting himself to a fluctuating exchange rate. He is unable to adhere to any formulated policy. He can make no contract for purchases over a period of months. He must buy from hand to mouth. All the other business operations dependent upon a steady and continuous flow of purchases or sales are correspondingly upset. He operates not on firm ground but on shifting sands and must make his sale contracts on the basis of the highest exchange rate to which he may be subjected, not the lowest.

The depreciation of the dollar has in the past year been steady. In other words, as the dollar became cheaper, florins, pesetas, and guilders became dearer, so that if the business man bought commodities at one price, he has found at the time of settlement that the foreign currency on which he based his purchases had in the

meantime risen in value, so that he has had to pay more dollars to obtain the same amount of currency with which to pay for his purchases abroad.

THE ALLEGED ADVANTAGES OF AN APPRECIATED EXCHANGE

Pros and Cons.—Now, there is no denying the fact that in so complicated a matter as foreign exchange, the resultant of diverse forces affecting so many commodities and involving so many countries, there will have to be some benefits accruing to somebody in the situation. To men of affairs the vital thing is to realize that the disadvantages outweigh the alleged advantages. Upon careful examination, there remains no doubt that the supposed benefits shrink into insignificance and that the disadvantages to us and our Allies are of serious consequence.

THE PRACTICAL ASPECT

Is the Depreciated Dollar a Good Thing?—It is held in some quarters that the depreciated dollar works to our advantage. This argument, if driven to its conclusion, falls of its own weight. If the depreciation of the American dollar to the extent of 30 per cent confers benefits upon us, why not attempt to obtain more benefits by depreciating the dollar to 60, 90, or 99 per cent? The fallacy immediately appears by the *reductio ad absurdum*. Russia and Mexico show the results of depreciated currency. Further, if depreciation of currency confers a benefit on a country, why did we after the Civil War make such unremitting efforts to restore our paper to a specie basis? Why is Austria, whose currency is so greatly depreciated, regarded as a poor credit risk in after-war trade? Why are our Allies making such strenuous endeavors to restore their depreciated exchange to parity in the neutral countries? Why did France raise a loan in Spain, paying 7 per cent, or 3 per cent above the prevailing rate, in order to lose the so-called advantages of a 40 per cent depreciation of the French franc in Spain? Why did England ship to the United States one billion dollars' worth of gold, borrow about two billion dollars of private lenders, ask for an extension of United States Government credit of about three billion dollars, and peg the pound sterling near par in New York, if the depreciation of the

pound sterling in America was an advantage? If, as is reasonable to suppose, all nations consider a depreciated currency a grave defect, what is there in the American situation to warrant the opposite belief; and if there is nothing, does not the argument in favor of depreciation collapse?

Does the Exporter Gain to the Extent That the Importer Loses?—The argument has been advanced that just in the degree that the importer loses the exporter gains, but the fallacy of this argument becomes apparent upon examination. Now, the Dutch merchant, for example, sells his commodities in guilders, and the price in Holland is determined as a result of the manifold influences of supply and demand, which operate to establish a level of prices f. o. b. at the point of sale. No matter whether the purchaser of Dutch commodities resides in France, Great Britain, or the United States, he pays the same number of guilders. In other words, if guilders remain at a stable level of appreciation, the consuming communities suffer a loss. And if, as is a fact, guilders rise continually and the appreciation grows, then the individual importer in the United States, France, or Great Britain loses, as a result of the change during the interim between the purchase of the commodity and the settlement of the debt in the value of the monetary unit in terms of which the purchase was executed.

It is clear that the importer loses, but does an American exporter, for instance, gain? The price for American commodities is determined as a result of the diverse forces of supply and demand which operate at the point of sale. In other words, regardless of the foreign purchaser or the status of his currency, the price in dollars is the same. For a purchase made in depreciated sterling or appreciated florins, the Englishman or the Dutchman pays the same number of cents per pound. In other words, on each individual transaction the American exporter gains nothing.

THE POINT OF VIEW OF THE ALLIES' INTEREST

Does the Depreciated Dollar Make Allied Purchases in Neutral Countries More Feasible or Economical?—It is argued that the causes which brought about a depreciation of the dollar have enabled the Allies to buy the necessary supplies of the neutrals.

This argument should be restated as follows: England, France and Italy imported more than they exported, so that bills of exchange on them accumulated in the neutral countries. They were able to dispose of by selling them in the United States and obtaining dollars therefor. This supply of dollar exchange which neutrals accumulated was far in excess of their need for dollar exchange required to pay for their imports from the United States. The final effect of these sales was that dollars depreciated because the neutrals were selling their exchanges in the American market. Why were they selling sterling, for instance, in the New York market? Because England supported sterling at a level of \$4.76 7/16 in the United States, or a depreciation of 10 per cent. In Spain, on the contrary, she permitted her exchange to depreciate to a very much larger extent, so that foreign exchange dealers all over the world were able to buy the pound sterling in the Spanish market at a low free price and sell it in the New York market at its higher fixed price. Now, the question is: Is the depreciated dollar essential to keep open the trade route between England and the neutral countries? Most decidedly no. If for instead of leaving open only one outlet for the disposal of the sterling exchange which now floods the American market and depreciates the dollar, it would be sounder to resort to any other means which could keep the neutral markets open to our exports. For instance, they could ask for loans, either private or public, in the neutral markets. France has been doing this in Spain, and we have been doing it in Argentina. Or our Allies might offer securities of the neutral countries to them. In this life and death struggle for liberty the neutral whose position has always been threatened by Germany could be induced to extend aid to the Allies; and if necessary, the Allies could bring influence to bear on all well-disposed neutrals. If they did this, the dollar would also remain at par. Intrinsically it should be at par, as our exports exceed our imports. The dollar is dragged down only because the pound sterling has depreciated, and the pound sterling has depreciated only because it has not been supported in the neutral countries as it was in America, even at the time when we were neutral. Of course, if the pound sterling were thus supported in the neutral countries then all the dollar balances, instead of accumulating dollar balances against the United States, would scatter their balances and accumulate for the

count sterling balances in London, franc balances in Paris, and lira balances in Italy; or if they preferred to accumulate their balances where the gold reserve was, they could transfer these sterling, franc, and lira balances to the United States at par.

Depreciated Exchange is an Increased Burden to the Allies.—Those of us who have been studying the foreign exchange situation have seen that the depreciated exchange was a tremendous additional, unnecessary burden on the Allied cause. In other words, here are the belligerents raising huge loans for the prosecution of the war. In so far as the cost of living has risen, these sums are not buying the volume of the commodities that they would buy in peace times. Admittedly, if Professor Irving Fisher's scheme of stabilizing the purchasing power of money had been adopted, it might have saved the Allied cause many billions, for commodity prices have risen more than 100 per cent since August, 1914. However, in addition to this huge rise in prices, we face an avoidable increase in the cost of commodities, which is occasioned by the depreciation of foreign exchange value of the currencies of the Allied countries. For every billion dollars that the Allies expend to-day, when their exchange rates are depreciated 40 per cent with respect to the neutral countries, there is a loss of \$400,000,000, which is imposed upon the already heavily burdened Allies. More loans must be raised to-day and more taxes will have to be paid in the future if this obvious evil is not adjusted. In other words, the Allies borrow or buy to-day of the neutrals in depreciated dollars, sterling, francs, and lire; but the loans will be repaid in 100 per cent dollars, sterling, francs, or lire. Only recently came a cable from Paris in which Mr. O. T. Crosby, charged with the duty of adjusting foreign exchange, fully confirms this judgment of the hardship inflicted by depreciated exchange.

THE POINT OF VIEW OF THE INTEREST OF THE UNITED STATES

The Depreciated Dollar Increases American Exports.—Those in favor of a depreciated dollar during the war state that the American exporters gain. We have proved already that the individual exporter does not gain. Let us now examine the second phase of this argument as it applies to the country as a whole. It

is true that when the dollar declines 40 per cent or more of its value in foreign neutral countries, it pays the foreign neutral trader to buy in the United States at our expense. This means, in other words, that in spite of the war the United States is running a special bargain counter exclusively for the benefit of the neutral countries. The amazing figures of the tripling of our exports to the neutral countries in one year indicate the extent to which this policy of special favors to the neutral countries has been allowed to be carried. At a time when the entire energy of the Nation is being devoted to the prosecution of the war and to the conservation of our resources, is it wise to stimulate our exports to neutral countries? Most decidedly "business as usual" is not desirable in war time either at home or in foreign trade. Mercantile considerations must yield to military necessity. The overwhelming exigencies of the moment favor conservation. If these exports to neutrals include essentials needed in the prosecution of the war, then the depreciated dollar is helping to sap our energies. If the stimulated exports are non-essentials, they are absorbing man power and capital which might better be used in essential industries, and, far worse, they are diverting cargo space which could be more usefully employed. In brief, the stimulation of American exports to neutrals which is put forward as a benefit by the advocates of the depreciated dollar, and which is admitted by those who want to stabilize the dollar at par, is in fact a pernicious influence. Those who favor it transpose peace standards into war time and rate mercantile considerations above military needs. They are as dangerous to the national welfare, because of the subtlety of their argument, as the well-intentioned pacifists who are thinking in terms of impractical social standards.

The Depreciated Dollar Curtails American Imports.—The argument is perfectly sound that when the dollar declines in purchasing power in foreign countries the decline makes our imports more expensive, so that it automatically reduces their volume. But if the curtailing of imports is desirable, why leave the process to forces which we do not directly control and which, in their operation, do not discriminate as precisely as the needs of the moment require? In other words, the depreciated dollar acts as a universal check on imports, regardless of whether they

are essential or unessential. It makes no distinction between the degrees of need. It is necessary to curtail imports during war time, but the entire operation of adjusting the restrictions to the nature of the commodities involved should be left to the War Trade Board.

The frame of mind which would permit the depreciated dollar to regulate our imports would also permit high prices to regulate our consumption. Is it not also true that high prices restrict consumption to essentials? But it is because, as President Wilson so finely said in his address of July 11, 1917, "The laws of supply and demand have been carried into a period where they have no proper place." The President, who was fully aware of the automatic restrictive action of high prices, was equally mindful that rising prices also inflict hardships upon those who cannot further restrict consumption and yet live. Transferring the President's doctrine into the field of imported products, one must conclude that he does not favor the curtailing of imports as a result of "natural" laws whose economic function conflicts with human needs. In the conflict between objective natural law and subjective human happiness, the guide to conduct is, in the President's opinion, the welfare of society and not the verification of abstract doctrine.

America's Interest.—There are those who favor keeping the dollar below par in foreign countries because it enables us to keep the neutrals "healthy," so that they can buy of us after the war. Assuredly it keeps the neutrals "healthy," but at our expense and at a time when they are not in need of our outside aid. Indeed, the plan of having the Allies strengthen the neutrals is much like the process of the transfusion of blood from a fighter who needs all his energies and who is already suffering from the loss of blood to a bystander who is not only perfectly healthy but has been sharing in the fighter's much-needed sustenance.

It seems rather to the calm observer that the need of the moment is not so much to have the Allies keep the neutrals "healthy" but the reverse—to devise methods whereby the neutrals can come with their accumulated strength to the aid of the Allied cause. Applied to the exchange situation, this means that the neutrals should lend their credit to the Allies or buy back

securities which the Allies may hold. This process must inevitably lead to the restoration of exchange to a parity. This operation must be accomplished by private agencies assisted by the governments, because the governments cannot borrow directly under the neutrality law.

Accumulation of Foreign Balances in the United States.—Another supposed benefit suggested is that the neutrals have accumulated dollar balances in this country which will remain after the war. These dollar balances accumulate as a result of the sale of sterling in the New York market at a fixed level higher than that prevailing in neutral markets. The facts are admitted. However, those favoring the maintenance of a depreciated dollar state that these balances will be used by the neutrals in buying here the commodities needed to restore their exhausted stocks. Let us analyze the situation. Why are the neutrals carrying their balances here? Primarily because they profit by the transfer and because the gold is here. The same reason that impels the individual to deposit his money with the strong bank holds true for the neutral nations.

Another reason is that they are buying dollars far below par now and will sell them at par when the dollar comes back to normal. The dollar will come back to normal, for the depreciation of the dollar is not due to any intrinsic weakness, but solely and exclusively to the fact that the English pound sterling has been tacked on to the dollar at the arbitrary figure of \$4.76. When the pound sterling declines in the neutral markets it drags the dollar with it, in much the same way as the man who is having temporary difficulty in swimming will encumber his brother who is helping him to keep afloat. In other words, the dollar is at a discount because England is importing more than she is exporting during the war. After the war England will either normally resume her previous prestige in the international market, or else she will make some arrangement whereby with the aid of the United States she will be able to maintain the pound sterling internationally not at \$4.76, but at \$4.865, and in that case the dollar will promptly bounce back to parity.

At some future time arrangements might be made for the good of all nations to establish a common gold fund to support international credit and to establish international confidence. Then

there would be no special advantages to the neutrals in keeping dollar balances in this country. When all countries are equally safe, and when the dollar returns to par, the neutrals may then reconvert their dollars into their own currency and transfer it to the country paying the highest rate of interest, which normally was England.

To summarize, then, we may say that the accumulation of dollar balances did admittedly result from the depreciation of the dollar. However, when the war is over, these balances will not necessarily remain here but in a free market will seek the highest return. Whether this favored market will be England or the United States will depend upon the extent to which we can popularize trade acceptances and foreign bills of exchange as standardized forms of short-term investments, and to the extent that our large city banks, small country banks, and the investing classes are willing to create a large market for short-term paper. The retention of the dollar balance in this country after the war in no wise depends on the fact that the dollar is depreciated at present.

UNDERLYING CAUSES OF THE PRESENT SITUATION

In the treatment of the evils and the supposed benefits of depreciated exchange, it was impossible to avoid touching on the causes and remedies for the situation. However, a separate and distinct statement at present will make the situation clearer.

Normal Correction of Exchange Involving Two Countries.—Normally the exchange rate of any country rises when commercial bills of exchange drawn against it are scarce. This is true when it exports more than it imports. Conversely, the exchange rate of any country falls when there is an oversupply of its commercial bills of exchange outstanding. This is the case when it imports more than it exports, so that its "promises to pay" are abundant. The needs of commerce are best advanced by a stable exchange, which normally fluctuates slightly around gold parity. Therefore, supplementing the flow of commodities, there is a flow of gold, securities, or credit. Gold flows to a country when foreign exchange rates there are so high that there is a profit above the cost of shipping gold in sending it to such a

country, where it will purchase more money than the gold represents. In other words, the high exchange rate which is due to a scarcity of bills of exchange is brought down when this scarcity is made good by gold shipments. This method of adjustment is the occasional and not the permanent process.

Another occasional or seasonal method is to sell bankers' bills or acceptances in the market where there is a scarcity of commercial bills. In other words, a foreign exchange banker whose information leads him to believe that the high rate of exchange is a temporary phenomenon and that the rate will return to parity lends his credit for a short period. On this he receives interest, and at the same time he makes a profit in the difference of exchange. This method was usual between the United States and England. The exporting of our crops in the fall and the heavy importations in the spring led to a flow of finance bills to offset the fluctuating supply of commercial bills. In the case of some young countries, like Argentina, that had a continuous balance of imports with a resultant decline in their exchange rates, some of the richer countries like England would extend credit to them in order to bring the exchange back to parity.

Exchange Rates of Three Countries—Arbitrage.—In the normal course of business the export balance of any one country (x) may be different in any two other countries (y and z). This difference in the extent of the balance of trade in the second and third countries will result in a discrepancy in the rate of the currency of country x in the two other countries y and z . At such a time it will be profitable for the foreign exchange banker to buy the currency of country x in country y and sell it in country z , for instance, or vice versa. This operation is known as arbitrage and is an additional means of stabilizing foreign exchange rates.

The normal international exchange market is like a hydrostatic system of tanks which are not only connected with the adjacent tanks but are cross-connected with each other, so that if as the result of any influence the liquid in one tank rises above the level of the rest of the system, the connecting tubes will immediately reestablish a uniform level.

The Present Abnormal Situation.—If the above statements express the facts, why is the international foreign exchange market

out of equilibrium? The answer is, simply because the neutral countries in which the exchange of the Allies is at a discount have been unable or unwilling to extend loans, and because the Allies have been unable to ship commodities or unwilling to ship gold or to return the neutral securities.

Short-time financial bills may correct the temporary situation but, as our Federal Reserve Board wisely ruled in 1916, are inadequate to meet the needs arising from the continuous unfavorable balance of trade arising from the excess of imports by the Allied countries during the war. For this reason the Allied exchanges have suffered in neutral markets. How does that affect America? It would not affect America unfavorably if we had not tied ourselves to the British system. In other words, for lack of credit the Allied tanks are disconnected from the neutral countries but are connected with the United States, which in turn is connected with the neutral countries. Therefore, the drain on the Allied tanks is reflected by a lowering of the level of the United States tank. This symbolization depicts our present foreign exchange situation.

If the pound sterling were not maintained by mutual agreement between the United States and England, then British exchange would sink as low in this country as it did in the neutral countries which were trade creditors, and dollar exchange would be at a high premium in the neutral markets. But this would inconvenience England greatly, as her depreciated pound could not then buy in America as much of the war necessities as the pound which is maintained at the higher fixed level.

For the good of the Allied cause, we, as neutrals, before April, 1917, made a sacrifice running into the hundred million dollars for our imports, which we overpaid to those neutral countries in which the pound sterling, and consequently the dollar, was at a discount. Our dollar became depreciated because our private citizens loaned England money in excess of her balance of imports and still permitted unlimited arbitrage. If they had loaned her just enough to pay for her excess of imports from the United States, our dollar would not have become depreciated, because the unfavorable commodity balance would have been offset by a compensating credit. In other words, as regards the mutual transfers of commodities and credits, the two countries would be equally balanced. But our citizens loaned money to England in

336 AMERICAN PROBLEMS OF RECONSTRUCTION

excess of her needs for paying for her imports from the United States and thus enabled neutral countries to dispose of their sterling in a strong market where the gold was piling up. In other words, our exports, while they were in excess of our imports from Great Britain, were not in excess of the sum of commodity imports plus American loans, so that the net balance of debits and credits of commodities, gold, and credits was against the United States and resulted in a depreciated dollar. In lending this money American citizens harmed some business men and the entire country, even as neutrals, but in doing it they aided the cause of their own customers. It would have been better to preserve our own dollar unimpaired and help our Allies by other means of securing the desired result.

REMEDY

An examination of the normal foreign exchange operation supplemented by an analysis of the present abnormal situation reveals the methods which must be adopted to remedy the present situation.

Need for the Remedy.—If the dollar remained at a discount and peace should come, there would probably follow a violent fluctuation of exchange, for industry would be transferred from a war basis to a peace basis, trade routes would be altered, and each such change would add its influence on the delicate mechanism of foreign exchange. The American economic mechanism would bump like an automobile shooting a chasm. If, however, in the meantime the dollar should be brought back to par, we could pass over the transition as smoothly as a locomotive crossing a trestle. The remedy for the present abnormal situation is twofold: there will be need to be an immediate remedy for the period of transition, and a permanent remedy for the period of reconstruction.

Immediate Remedy—Credits.—The immediate remedy, applicable even while we are at war, is for us to follow the policy in neutral countries that England followed in the United States before April, 1917, that France is practicing to-day in Spain, that Germany is forcing to-day on Switzerland and Holland. The

policy to be followed is, "If you want to sell your commodities, you must lend your credit." Whether that credit be in the form of the repurchase of securities or the extension of a loan, it matters not. It is not the method but the substance that counts. England paid 5 and $5\frac{1}{2}$ per cent for money in this country to save the depreciation in exchange rates of several times this amount. France is borrowing money in Spain at 7 per cent and saving a 45 per cent discount ruling against the franc in Spain.

It is to the interest of the creditor neutrals to lend. (1) They have the money available. (2) It will keep their markets from migrating. (3) It will prevent other nations from seeking substitutes for products of the neutrals. (4) Neutral bankers would now be able to cash in their purchase of dollars at par and gain the previous discount as a bankable asset.

If the neutrals wish to express their faith in the triumph of liberalism, it is their duty to support its champions. If the Allied nations are conscious of their purpose and destiny, if they have faith in the ideals for which they are fighting, they will spare no efforts to obtain loans from the neutral countries so as to return their exchange rates to parity. America particularly, with her accumulated gold and her abundant resources, is in a position to make this request; but this is not the only method. There are others available, though possibly less desirable.

First. The desired result may be attained by forbidding the sale by neutrals of pounds sterling for dollars and compelling them to buy with their native currency. This only means limiting arbitrage until the dollar reaches par.

Second. We may accomplish it by placing in neutral states United States bonds payable in their own currency and thus buying the exchange necessary to meet the urgent though moderate demand of our importers. This can be done by French, English, and American banks and bankers. The Government can merely open the way, but neutrality would prevent the United States borrowing directly.

Third. We may accomplish it by encouraging foreign banks to keep balances in the United States in excess of their present deposits and to an extent necessary to offset their unfavorable trade balances with the Allied countries dealing with them—or, in other words, to the extent of their own favorable balances of trade, at interest—and we can afford to pay them 5 per cent or

6 per cent, if necessary, for such balances, rather than compel our merchants to pay 40 per cent for exchange. We may encourage them to buy high-grade American securities and bonds.

Moreover, if the dollar was at par—if the policy of the United States was to keep the dollar at par—these balances of neutral countries would greatly expand, because then foreign bankers would know that they would not suffer any loss in the future as a result of the depreciation of the American dollar. When they know that they will get their principal back with interest in terms of their own currency at par, they will deposit their balances here more readily.

Fourth. We can bring the American dollar to par by imposing an extra tax on goods required by Spain, putting the export tax at the current rate of the exchange, whatever it is. It would probably not take Spain long to discover the wisdom of exchanging pesetas for dollars at par, but I should much prefer avoiding so irritating a policy.

Fifth. Another way to bring the dollar to par is by negotiating with the Government of Spain, with the coöperation of France and Great Britain, and seeking just treatment as a matter of amity and commercial decency. This, however, would require a constant series of Government negotiations and, while of value, would be of less value than using the absolute power which we have to require commercial justice through the regulation and encouragement of individual transactions.

Sixth. The dollar can be brought to par by expanding exports and contracting imports.

The Permanent Remedy—Federal Reserve Foreign Bank.—An immediate remedy is required, but a permanent mechanism is urgently needed for the period of reconstruction after the war and for our future trade expansion. Whether we adopt any definite policy or not, it is our duty as far-seeing men of affairs to prepare for peace as much as it is our duty to-day to fight the war. The conditions in international trade will probably be so unsettled for a considerable period after the war that wise provision should be made for minimizing its unsettling effect. A Federal reserve foreign bank would accomplish that purpose. This measure would be in line with the policy that the European nations have adopted. Even during the war Germany controlled

her foreign exchange operations by means of a Foreign Bill Office or Devisencentrale, through which were cleared all import and export bills of exchange. It has been put forward seriously as a reconstruction measure that Germany centralize the control of foreign bills, so that the Government, by reason of its control of bills of exchange arising out of import or export transactions, could control the extension or the direction of foreign trade. Many countries have established so-called export banks to facilitate the resumption of normal trade relations after the war. England established a British Trade Corporation whose powers are broad and include in part the duties contemplated by the Federal reserve foreign bank. In addition there was formed an Overseas Banking Corporation, whose powers are more closely confined to those contemplated in the proposed Federal reserve foreign bank.

Germany, France, Holland, and Portugal have all established export or foreign trading banks. Apparently the thoughts of business men in all countries are being turned toward the creation of suitable instruments for the meeting of the new needs of a stimulated commercial world. Whether these institutions will be permanent or not depends upon conditions of the future. Our duty to-day is to provide for their establishment during such time as we may need them. The Federal reserve foreign bank has as important a part to play in our foreign commerce as the Federal Reserve Act has had to play in our domestic commerce. The justification of the one vindicates the proposal to establish the other.

The Organization and Fundamentals of the Federal Reserve Foreign Bank.—A bill to establish a Federal reserve foreign bank, introduced on February 20, 1918, drawn by me, is now in the hands of the Committee on Banking and Currency.

It proposes to establish this bank in the City of New York, with a capital of a hundred million dollars. The stock is to be offered to the public or taken by the Treasury if not subscribed, to pay a 5 per cent annual cumulative dividend, and to be made non-taxable, and one-half of the surplus is to be turned over to the United States and one-half to a surplus fund. The bank is to be given full corporate powers and is to be placed under the supervision of the Federal Reserve Board and under the control of

nine directors appointed by the President of the United States. The directors are required to be of tested mercantile experience and are to have a tenure of nine years after the first year, one being chosen annually. They are to receive proper salaries.

The powers of the foreign bank are to be as follows:

(a) To receive deposits from American and foreign banks and bankers, from the United States, or from foreign governments, in current funds, lawful money, national bank notes, Federal reserve notes, or checks and drafts, payable upon presentation, and also to collect maturing notes and bills.

(b) To discount notes, drafts, and bills of exchange arising out of actual commercial transactions—that is, notes, drafts, and bills of exchange which have been issued or drawn for agricultural, industrial, or commercial purposes or the proceeds of which have been or are to be used for such purposes. The Federal Reserve Board is to have the right to define the character of the paper thus eligible for discount.

The aggregate of such notes, drafts, and bills, bearing the signature or indorsement of any one borrower, whether an individual company, firm, or corporation, rediscounted for any one bank, shall at no time exceed 5 per cent of the net unimpaired capital and surplus of said foreign bank. But this restriction shall not apply to the discounting of bills of exchange drawn in good faith against actual existing values. The foreign bank may discount acceptances of the kinds permitted under the authority of this act.

(c) To deal in gold and silver, coin and bullion, at home or abroad, to make loans thereon, to exchange Federal reserve notes for gold, gold coin, or gold certificates, and to contract for loans of gold coin or bullion, giving therefor, when necessary, acceptable security, including the hypothecation of United States bonds or other securities which Federal reserve banks are authorized to hold.

(d) To buy and sell, at home or abroad, bonds and notes of the United States or of foreign governments and bills, notes, revenue bonds, and warrants, with a maturity from date of purchase of not exceeding six months, issued in anticipation of the collection of taxes or in anticipation of the receipt of assured revenues by any State, county, district, political subdivision, or

municipality in the continental United States, including irrigation, drainage, and reclamation districts. Such purchases are to be made in accordance with rules and regulations prescribed by the Federal Reserve Board.

(e) To sell, with or without its indorsement, and to purchase bills of exchange arising out of commercial transactions as hereinbefore defined.

(f) To establish from time to time, subject to review and determination by the Federal Reserve Board, rates of discount and exchange and commissions for the opening of credits at home or abroad, to be charged by the foreign bank for each class of paper which shall be fixed with a view to accommodating commerce and business.

(g) To issue bank notes and receive Federal reserve notes upon the same terms and conditions as are now provided for the Federal reserve banks.

(h) To open credits at home and abroad for the account of domestic and foreign banks or bankers, to facilitate exports from and imports to the United States and exports and imports between foreign countries.

(i) To establish, upon the direction of and under rules and regulations prescribed by the Federal Reserve Board, branches and agencies in foreign countries for the purpose of facilitating commerce with the United States.

THE PURPOSES AND ADVANTAGES OF THE FEDERAL RESERVE FOREIGN BANK

The purposes of this proposed bank are as follows:

To cooperate with and assist American banks engaged in foreign business and to open to all American banks access to foreign business.

To furnish American importers and exporters with credit information and with credit.

To buy and sell foreign exchange throughout the world.

To provide other accommodations, such as freight, express, and insurance, storage and services through reliable concerns, to merchants and manufacturers and to wholesalers and jobbers in their dealings with foreign countries.

342 AMERICAN PROBLEMS OF RECONSTRUCTION

To make available to our importers and exporters, manufacturers and merchants the necessary credits and accommodations for the transaction of foreign business.

To stabilize international exchange just as the Federal reserve bank system has stabilized domestic credits in the United States.

To put and to keep the American dollar at par in every nation in the world.

To make the American dollar a dependable medium of exchange.

To stimulate and encourage foreign banks to make deposits with the Federal reserve foreign banks and with the other banks of the United States, and to encourage the loaning of the banking capital of the United States to foreign countries by giving assurance to capital of its safe return with interest, without discount by an adverse exchange.

CONCLUSION

It goes without saying that no institution, no matter how finely adapted to secure the ends in view, can succeed without the human factor. The Federal reserve system, established in 1914, depended for its success upon the coöperation of the national bankers. Its power was increased by the entrance of the trust companies into the system, at the urgent request of the President and of the friends of the system. Its potentialities will not be fully realized until the American manufacturer and merchant, large or small, appreciate the importance to an industrial community of a large market of trade acceptances as a substitute for the open book account, which is based on indefinable credit and is attended with larger risks. A sound industrial community in the United States must avail itself of the instruments that all Europe has been utilizing for years in the establishment of a sound industrial and financial structure. In the same way our importers and exporters will have to realize that in order that America may attain a place of dignity and esteem in international trade the United States must make itself, by intelligent action, one of the nations of the world whose money will be current at par wherever the streams of commerce flow.

With the coöperation of importers and exporters, who will

create the foreign bills of exchange; of the banking institutions which may buy and sell them at a profit in continually larger volume; of the Federal Reserve Board, which cannot, in addition to its vast domestic burdens, handle all the details of the proposed foreign bank, and yet the assistance of whose able personnel would insure the success of the project; of the clear-thinking students of economics and finance, whose latent powers the Government will have to call upon more and more, as it has not done in the past—in short, by the harmonious union of forces in this country, the United States will be able to emerge from this war quite prepared to enter the larger period of reconstruction in which our increased powers will be devoted, as in the past, to the furthering of the happiness of our own citizens and the promotion of good will among all the nations of the earth.



XIX

FOREIGN INVESTMENTS

BY FRANCIS H. SISSON ¹

Vice-President, Guaranty Trust Company of New York

Despite the colossal expenditures which the United States is making in financing its share of the war, we shall unquestionably emerge from the conflict, as we are to-day, the wealthiest of all nations. When peace is established practically all the world will turn to us for aid. We shall be called upon to extend financial assistance to nearly all mankind. It will be our privilege, as well as our gain, to aid the less fortunate peoples of other countries in the industrial and economic reconstruction after the war and to help them enjoy a new and greater prosperity, for the unparalleled destructive period of the present must be followed by one of intense productivity.

The Importance of Foreign Investments.—Our future national development will be more contingent upon the extent and kind of our foreign investments after the war than may be generally appreciated. The greater our ability and willingness to lend money to other peoples the greater will be our own prosperity and the more secure our international position. Foreign investments will be not merely an aid to the full realization of our national possibilities but an absolute essential in the discharge of our moral obligations.

We should not forget that the disturbance at any one point of the equilibrium of credit is felt everywhere more or less, and

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our interest in the soundness of credit conditions abroad can be second only to our concern in such vital matters at home.

Our enormous gold reserve, which exceeds one-third of the coined gold and bullion in existence, has been acquired because European governments have been unable to pay for their purchases from us in merchandise and have had to surrender their gold. Upon this reserve we have built a credit structure which a large outflow of the precious metal would seriously disturb.

But the recovery of a part of the gold which the extreme exigencies of war forced Europe to send here will be essential to the restoration of European prosperity after the war. It is certain that those countries which have been drained of their gold will seek to buy it back through stimulated exports and curtailed imports. A temporary reduction of our present favorable commodity balance seems inevitable when peace permits a resumption of overseas commerce by all belligerents.

The best safeguard, perhaps, for the preservation of our gold supply consists in the placing of foreign bills, short-term obligations, and other investments abroad. Furthermore, by investing capital outside our own boundaries we shall lay a solid foundation for ultimately increasing both our exports and imports, regardless of the violent readjustments which may occur in foreign trade at the beginning of the economic struggle after the war. For it follows that by making investments in other countries we shall not only provide a fund of money to be drawn against in the future, but we shall increase the purchasing power of those countries by aiding in their development and thereby increasing the demand for such things as we are able to sell them. So enlightened self-interest alone should dictate a policy of well-directed and widespread foreign investments.

How Foreign Investments Aided England.—The wisdom of distributing investments throughout many lands was amply demonstrated by Great Britain's experience at the beginning of the war. On British investments, as on the British Empire, the sun never set. This condition proved extremely fortunate for England during the crisis and undoubtedly was one of the reasons for her ability to finance successfully her needs and those of her allies.

In commenting upon this subject an English authority observed:

"Never had the magnitude of the financial pull which London has become able to exercise over the rest of the world been so clearly manifested as during the present upheaval. The mere threat of war was sufficient to cause all the foreign exchanges to move violently in favor of London, and the machinery of payments broke down because a crowd of foreign borrowers was trying to transmit money to London in payment of obligations falling due, and scarcely anybody was trying to transmit money the other way."

Had not British investors accumulated large holdings in gilt-edge securities, which constituted excellent collateral, it would not have been possible for Great Britain to float such large loans in our markets—certainly not at a favorable rate. And when the financial strain of war increased in England it was conveniently relieved to the extent of hundreds of millions of dollars by the liquidation in this country of English holdings of American securities.

In addition to the valuable service which foreign investments have rendered the English during the period of severest financial stress, they also formed the basis for England's huge foreign trade. We have learned much from the British in finance, but this lesson may eventually prove the most useful of all.

It is true that we have been busy developing our own country, so rich in natural resources, which will require many more years for their full utilization. In the past we have needed and obtained large sums of money from abroad to develop our mines, fields, factories, and railways. But in recent years we have supplied a constantly increasing amount of our own financing, and the war only accelerated the gradual but inevitable change which was taking place in the financial relationship of the United States to the leading European countries. It suddenly converted us into a creditor nation; it forced us to increase our productivity immensely in practically every essential line; it necessitated the creation of a huge merchant marine; but, most of all, it coördinated and energized our tremendous industrial fabric and changed the economic thinking and habits of our people.

We Have Become Bond Buyers.—One of the most significant and far-reaching results of the war upon this nation, in fact, has been the growth of bond-buying on a large scale. It was estimated that prior to 1914 there were not more than 300,000 bondholders in this country. At the time of this writing there are probably between 15,000,000 and 20,000,000, and before peace is declared there will be several millions more. Hundreds of thousands of investors who had never learned the value of bond buying as an aid to frugality are rapidly acquiring the habit. When they no longer need to buy their Government securities they will seek other kinds.

Government bonds have proved the best means of educating the public to security investment, because their possession tends to make the owner value and insist upon stability. The person who realizes the reliable character of his national investment is not likely to waste money in so-called wildcat schemes. He will demand guarantees comparable to those of the Government and will be able to get them in foreign countries. This education will go far toward preparing Americans for the part they will have to play in reconstruction, enlarged development, and new creation which post bellum days will usher in all over the world.

But it is essential for us to consider carefully the political and economic elements which may exert a potent if not a decisive influence in the matter of foreign investments. Many of these factors cannot now be studied, for the simple reason that they have not yet been determined. Indeed, it is difficult if not impossible while we are in the midst of revolutionary economic and social changes to predict with even a reasonable degree of certainty what the after-war conditions will be.

Possible Factors of the Future.—It seems probable, however, that national and international regulation of finances and gold movements will necessarily be continued for some time after hostilities have ceased. The world's supplies of foodstuffs, metals, building materials, and other major necessities will have to be distributed equitably for use in reconstruction.

All countries are studying and preparing for prospective industrial conditions after the war. There is full recognition of the need for coöperation when peace is arranged. The interdependence of the countries comprising the two groups of bellig-

erents is more marked to-day than ever. The Allied Governments realize that they must retain supervision of imports and exports. There is an agitation in England for a law by which the British Government will be enabled to maintain its present extraordinary powers in the regulation of imports and exports for a period of three years after the close of the war.

Future commercial relations between the different nations undoubtedly will be established at the peace conferences, and it is more than probable that the Allies will draw up some broad, general plan to keep German commercial intrigue within bounds. To prevent indiscriminate buying, the Allies must make their purchases on some such lines as they have established during the war.

The alliances created by the conflict may be expected to influence trade policies to a large extent after war, and measures will be taken to preserve and to promote the friendly relations which now exist.

In this connection, Adolphe Landay, Deputy to the French Chamber, Vice President of the Commission of Commerce, and Counselor of Foreign Commerce, has declared:

"The years that immediately follow the cessation of hostilities are certain to constitute, in many respects, a very troubled period for the economic life of the nations—a period during which the Allies will have to face difficulties and will be exposed to perils of the same kind as during the war. They would be guilty of the gravest imprudence if they dissolved their alliance in the economic field upon the conclusion of the war and immediately resumed commercial relations with the enemy under the conditions prevailing before the conflict. . . . Germany willed it by commencing her economic imperialism, by undertaking to make her economic expansion a means of establishing confederations. And it is only after a veritable conversion has been shown to have taken place in the German public spirit that we can think of returning to the former régime."

Taxes, price fixing, and labor adjustments also will constitute important elements in shaping the future of our foreign investments. Protective tariffs generally may be expected, for every

effort will be made to foster home industries in all countries. But all belligerents will certainly abrogate as soon as practicable the present numerous embargoes, restrictions, and inhibitions on foreign trade. This will include the existing regulation of commodity prices, of course, the abandonment of which will again permit the normal operation of the fundamental law of supply and demand. It seems likely, however, that the recession of prices to a level approximating that of pre-war days will be gradual. The readjustment, in fact, may extend over a period of years.

Post bellum labor conditions are sure to affect foreign investments. The losses of able-bodied men have been tremendous and will be larger before the end of the struggle. There has also been a proportionately large sacrifice of mechanical skill which cannot be replaced immediately and the loss of which will be most keenly felt during the attempt to revive normal industrial life. A great redistribution of labor must occur, complicated by the problems of army demobilization, and this is certain to alter in no small degree the trend of war trade.

It appears to be assured that some of the European belligerent states, depleted in their own labor market, will not permit a free exodus of able-bodied citizens. The Swiss Federal authorities, for instance, have lately stated that after the war Germany and Austria are likely to impose some kind of "export prohibition" against productive nationals. For this purpose the Germans will maintain their passport system introduced during the war. The Swiss authorities express the opinion "that Germany will allow only those of her subjects to leave the country whom she considers as being valuable champions for the necessary regaining of lost foreign markets."

One direct result of the anticipated labor shortage will be the fostering of inventiveness, which has received a wonderful stimulus from the stress of war, particularly in labor-saving devices of all sorts.

New and undeveloped sources of productive energy will be sought as never before. Hydro-electric power, especially, will be utilized on a far greater scale the world over. Already Norway and Sweden are converting their waterfalls into the equivalent of 400,000 horse-power. Germany has been utilizing practically all her water power since the war began, making possible the con-

servation of coal. Russia, it is estimated, has 13,000,000 unused horse-power in the rapids and waterfalls of her most important industrial and metallurgical districts. Our own Government has at last awakened to the necessity for developing our "white coal" and has appropriated \$20,000,000 to utilize some of the great water power in the Tennessee River for the purpose of obtaining nitrogen from the air. More than 60,000,000 horse-power in this country and its dependencies awaits governmental consent and investment impulse.

These are only a few possible factors of the future in the field of foreign investments.

Reconstruction Opportunities.—But the great immediate need and opportunity for foreign investments lie in the reconstruction of devastated Europe. The loss of life and property has been so complete in many parts of the continent that reconstruction on old lines will be impossible. In all European countries at war the return of peace will mean not a return to ante bellum conditions, but an upbuilding on a new basis.

The total amount of destruction cannot be estimated with even approximate accuracy and probably never will be correctly computed but doubtless will exceed \$10,000,000,000.

France and Belgium cannot manufacture all they will require for rebuilding. France is likely to import three-quarters of the timber demanded for reconstruction, and Belgium will have to buy abroad all that she needs. Belgium also will have to import, it is estimated, from \$100,000,000 to \$150,000,000 worth of industrial machinery, and France at least \$60,000,000 or \$75,000,000 worth. In addition, farm implements of all sorts must be supplied by other countries, particularly by the United States. So the most far-reaching coöperation of American industries is not only desired but imperatively demanded if France and Belgium are to recover from the blighting effects of their fearful ordeal in the battle for democracy.

France Will Recover Rapidly.—If the aftermaths of other wars and her remarkable war-time industrialization afford any criterion, France will recover quickly from the actual physical ravages of the present conflict. The reconstruction of railroads, the erection of factories to replace those destroyed, and the re-

placement of the industrial machinery that will be required offer a peculiarly inviting field to American capital and enterprise. Tentative steps have already been taken by representatives of American engineers and business men in this work.

Aside from its attractive business aspect, the enlistment of American money and effort in the great task of reconstruction at the end of the war will tend to cement still more closely the ties that bind the two great republics together and will enable Americans to discharge in part the debt they owe to France for her friendly interest in the welfare and progress of the United States from the beginning of its life as a nation.

In judging the industrial status of any nation, its production and consumption of coal, iron, and steel and the growth of its transportation systems are highly significant factors.

In 1869 French industries consumed 21,000,000 tons of coal, of which 13,500,000 were taken from home mines. In 1912 the consumption was 61,000,000 tons, of which 41,000,000 were taken from home mines.

In 1869 the French output of cast iron was 1,380,000 tons, and of steel 1,060,000 tons. In 1914 France produced 5,311,000 tons of cast iron and 4,635,000 tons of steel.

The increasing activity of her railway system is similarly demonstrable. In 1860 there were in France 10,743 miles of railroad track; in 1912 there were 31,546 miles.

Between 1869 and 1912 inland navigation in France increased 150 per cent, while the traffic of her mercantile marine expanded amazingly. The shipping entering French ports in 1869 was set down as 11,000,000 tons. In 1912 this had been increased to 53,000,000 tons.

French Finances Sound.—Immediately prior to the war France had a gold stock equaling \$1,200,000,000 and a stock of silver aggregating \$411,100,000. Of gold, silver, and paper her per capita allotment amounted to \$48.63, which was more than 25 per cent in excess of the per capita of gold, silver, and paper for the United States in the corresponding period; more than twice that of the United Kingdom of Great Britain and Ireland; approximately two and one-half times that of Germany; and more than four times that of Austria-Hungary. With a population of

39,600,000 at the beginning of 1913, France had in postal and private savings banks accounts of 14,578,897 depositors, with aggregate deposits equivalent to \$1,091,303,658. On June 30, 1915, the United States had only 11,811,169 depositors out of a population of 101,740,000.

Reasons for Solidarity.—Leaders in American finance ascribe the solidarity of the French Republic to three influences—first, a thoroughly sound banking system, centralized in one of the greatest banking institutions of the world, the Bank of France; second, the ingrained thrift and frugality of the French people as a whole, together with a national economic vigor not elsewhere surpassed; third, wise supervision and patriotic coöperation by the Government with banking and business interests.

The Government does its part to warrant and retain the confidence of the holders of its securities. One of its wise policies is to impose new taxes to defray the interest charges on new security issues. It began this practice after the Franco-Prussian war and is following the same rule in regard to securities issued to finance the present conflict. This continuity of purpose, doubtless, will prove reassuring to all holders of French Government securities.

The Franco-Prussian war of 1870-1871 taught the French people the meaning of thrift and economy. So well did they learn this lesson that the whole sum of the indemnity demanded by Germany, \$1,000,000,000, was raised within the Republic's confines by its own inhabitants and paid off more than one year before the time stipulated by the Germans. And the habit thus acquired has never been forgotten by the French.

Why America Must Finance Europe.—The national debts of the powers now fighting are multiplying at a prodigious rate and will do so until the conclusion of the war. Their aggregate magnitude cannot now be estimated. To be sure, our own debt is mounting rapidly, but our resources have not been strained and will not be for some time. Furthermore, by virtue of our unequaled wealth, we are certain to be in a sounder position economically than any other nation when peace finally comes.

In commenting upon England's fiscal prospect, Lord Des-

borough, president of the London Chamber of Commerce, explained early this year:

"Whatever the conclusion of this disastrous war, one thing is certain, and that is that our Empire will be burdened with a most appalling and terrific debt. . . . There will be something like 6,000 millions sterling, and that will result in an approximate sum of 600 millions to be paid yearly, which is almost all of the capital of the national debt before the war."

None of the European belligerents will have sufficient financial resources to pay for their reconstruction bills. Consequently, in order to carry out their gigantic programs for rehabilitation they will have to float more loans, a considerable portion of which must be placed in those countries where they can be used in payment for supplies to be bought.

Requests for credit must necessarily accompany the demands which Europe will make for goods in this country after the war, and we shall be asked to take, in partial payment, at least, securities which will give us an interest in foreign enterprises of all kinds. Although the policy will be new to us, we should not forget that Great Britain gained the foremost rank in foreign trade by this method, and that Germany, her chief rival, adopted the same plan in reaching out for foreign markets.

North America.—While the United Kingdom will be prepared eventually to finance many colonial and foreign enterprises, such operations will be on a smaller scale than in the past. One of her richest fields of investment, Canada, will probably continue the war-time tendency and increasingly rely upon the United States. For one of the notable features of our war-time financing has been the rapid expansion of United States investments in Canada. Because of the Dominion's proximity, the growing solidarity between her people and ours, the splendid opportunities there, and her sound economic condition, much of our surplus capital from now on will seek investment there.

South America.—Latin America was a large borrower of European capital before the war, and the development of the potentially great commercial empires to the south was arrested when the financial flow from over the seas was interrupted. But just as

Latin American countries have been compelled to seek funds in increasing quantity in the United States during the last three years, so they will probably seek money here after the war.

South America, with its vast wealth in forest and mineral resources and with its ability to supply foodstuffs, is perhaps the most promising virgin soil for development in all the world. Gratifying results are rewarding those who have devoted themselves to the opening up of the dormant wealth of the Southern Continent. Not only is the general productivity of the soil being increased everywhere to meet the world's insistent demands, but new industries are being called forth by the need for new sources of supply of many commodities or for substitutes.

But this development is not yet proceeding along organized, comprehensive lines. South America is too large and its population too small, its means of transportation too scanty, its labor too unskilled, and its banking facilities too inadequate to permit systematic development of its resources.

To recognize this fact, however, is to realize the immense possibilities which these regions offer to the patient explorer and promoter, be he individual or corporation, be he backed merely by his own energy and capacity or by the millions of powerful interests, be he forester, cattle breeder, engineer, merchant, banker, or investor.

Industrial enterprises in South America experience difficulty in obtaining banking support unless some of the big private banking houses are directly interested. The majority of banks there find it impossible to lock up their resources to the extent required by operations of this nature. An industrial bank, or rather finance company, with branches throughout South America, would have infinite opportunities. With adequate capital and progressive management, such a company would be in a position to support existing industries and to participate in new ones. By assisting in developing the resources of those rich regions it would serve the peoples of South American countries, of the United States, and of the world at large.

Foundation for Foreign Financing Laid.—The major part of our investments abroad will be placed through banks, which will afford not only the most convenience but the greatest degree of safety.

In touching upon this phase of the subject and our foreign trade possibilities, W. P. G. Harding, governor of the Federal Reserve Board, stated very recently:

"National banks having a capital and surplus of a million dollars are authorized by the Federal Reserve Act to establish foreign branches of American banks operating in Latin America as well as in European countries. These branches have been established as a rule by very large institutions, and one of them has at this time 48 national banks as stockholders, who have thus combined to facilitate foreign trade.

"The foundation, therefore, for financing our foreign trade properly through the medium of American institutions has already been laid, and when at last the war is ended and the restrictions upon commerce can be removed and a greatly augmented merchant marine can spread its sails upon the seven seas and carry to all the nations of the world products of the farms, the mines, and the factories of America, branches of American banks will be found at the distant ports to welcome these messengers of commerce and to finance both their incoming and outgoing cargoes.

"The foundation of an American financial structure extending throughout the world has been carefully conceived and securely laid, and the superstructure will follow as conditions become more favorable."

The establishing of branch banks abroad and, in certain countries, partnerships or affiliations with local banks, will help us to maintain our present position.

American Leadership.—We cannot expect our Allies to be able to repay on demand all the loans they owe the United States. But our relations with them will form the basis of no small part of the influence which we are destined to wield hereafter in international finances, so that, for instance, instead of British, French, Belgian, and German banking syndicates exclusively financing China or South American countries, and instead of international industrial groups composed only of Japanese, British, French, Swiss, and German concerns exploiting the resources

of those lands, there will certainly be American participants. Furthermore, the British, French, Japanese, and other foreign bankers will welcome us as their partners. As it is our duty to help them to-day as our Allies, so in the reconstruction period to come it will be our reward to have them recognize that our financial institutions are entitled to a fitting place in the world's finance.

If we are to maintain our hold on foreign markets and extend our international commerce we must become lenders of wealth on a large scale, for trade invariably follows capital abroad. It will be decidedly to our interests to help develop other countries and to promote their prosperity.

To do this we must develop within ourselves a broad spirit of enterprise which will comprehend the needs of the world itself. We must be actuated by high principles of humanity, so as to coöperate with other nations for a general prosperity and for common progress. Most important of all, there must be coöperation, thorough and constructive, within our borders between business and Government, including the diplomatic, executive, legislative, and judicial departments. Business must be freed from the shackles of false economics and selfish politics if it is to win supremacy abroad. Sanity, vision, and courage in largest measure are demanded.

Foreign investments in the future must not lead to territorial aggression or to the control of domestic politics and ultimately to the complete domination of the debtor nation. There must be no overrunning of small nations by unscrupulous larger and stronger nations; there must be no annexing of neighboring mine fields or conquering of border provinces, no colonial exploitation, and no imperialistic economic aggrandizement by any nation or government.

America's strength and influence—industrial, commercial, financial, and, if need be, military—must be pledged to the support of that program. Then, indeed, the world may be made safe for democracy—and democracy made safe for the world—and the progress of all peoples be thereby promoted.

PART IV

PROGRAMS, MONETARY AND FISCAL

XX

STABILIZING THE DOLLAR IN PURCHASING POWER

BY IRVING FISHER ¹

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THE FACTS AS TO PRICE MOVEMENTS

General Nature of the Question.—The great war, which in the public mind at first eclipsed the "high cost of living," has finally thrust it again into the foreground. Again we are witnessing world-wide complaint and again we are investigating and legislating on the subject. We are talking of food famines and of a supposed dearth of goods. We are talking of "inflation" brought about by issues of paper money, by expanding credit, and by inflowing gold. Sweden has practically demonetized gold. Price fixing is being tried on a vast scale, public opinion is aroused against the raising of prices, and drastic penalties have been enacted.

The present war will go down in history as probably the greatest destabilizer of price levels the world has ever known. People are gradually awakening to what is happening or beginning to happen. Unfortunately the public discussion which we are now witnessing shows bewilderment and confusion of thought. Yet never was there more need of straight thinking. Without it we may attempt the impossible or, like an infuriated mob, hang the wrong man to the lamp post.

¹ A. B. 1888, Yale; Ph. D. 1891; studied Berlin and Paris. Professor of Political Economy, 1898—; President of the American Economic Association, 1918. Author of works on mathematics and economics, particularly on the rate of interest and the purchasing power of money, and on hygiene and public health.

A professor once said to his students: "In beginning the study of any social problem, put to yourself four questions: What is it? Why is it? What of it? What are you going to do about it?" Accordingly I shall take up (1) the actual *facts* to be explained; (2) the chief *causes* which explain them; (3) the resultant *evils* which make a remedy desirable; and (4) the *remedy*—and this not only as to the present high cost of living but as to price movements generally.

Index Numbers.—The prices of various articles do not move together but scatter or disperse like the fragments of a bursting shell. Yet there is always a definite average movement just as there is a definite path of the center of gravity of the shell fragments. In order to depict the average movement of prices we must first have some way to measure it. A very simple way has been devised, called the "index number."

An index number is a number showing the average rise or fall of prices. Thus, if one commodity has risen 4 per cent since last month and another 10 per cent, the average rise of the two is midway between 4 per cent and 10 per cent, or 7 per cent. It is $\frac{4+10}{2} = 7$. If we call the price level of the two articles last month 100 per cent, then 107 per cent is the "index number" for the prices of the two articles this month. The same principle, of course, applies to any number of commodities.

Many different systems of index numbers are now before the public—such as those of Bradstreet, Dun, Gibson, the *Annalist*, the United States Bureau of Labor Statistics, the Canadian Department of Labor, the London *Economist*, the London *Statist*, and the British Board of Trade. The present index number of the United States Bureau of Labor Statistics covers 300 commodities. It is an interesting fact that throughout the ages, though prices have sometimes fallen, they have generally risen. In France prices before the war were four to six times as high as five hundred years ago and five to ten times as high as a thousand years ago.

After 1896 prices rose rapidly up to the outbreak of the war. But a much greater upward impulse was imparted by the war itself. The rise before the war, great as it was, amounted, on the average, in the United States, to only one-fifth of 1 per cent per

month, and in England to still less; whereas since the war the rise has amounted to $1\frac{1}{2}$ per cent per month in the United States, and much more in many other countries—in Germany and Austria to 3 per cent per month, and in Russia to $4\frac{1}{2}$ per cent per month. To these German and Russian rates, among the records of index numbers which have been computed, there is no parallel. If before the war we could become excited over a continued upgrade of one-fifth of 1 per cent per month, we may begin to understand the feelings of the Bolsheviki, confronted with an uphill movement more than twenty times as steep!

THE CAUSES OF PRICE MOVEMENTS

Some Erroneous Explanations.—Why is the price level always changing? In recent popular discussions a great variety of reasons have been assigned. I shall not discuss in detail the alleged explanations. While some of them represent important factors in raising particular prices, nevertheless only one of them, namely, the war (and foreign trade caused by the war), has been a large factor in raising the general level of prices, and this, of course, only recently. Obviously no explanation of a general rise of prices is sufficient which merely explains one price in terms of another price. To say that the cause of rising "prices" is rising "wages" is merely to say that the prices of commodities have risen because the price of labor has risen; and we might as well turn it about and say that the price of labor has risen because the price of food has risen and so driven workmen to strike for higher wages. Such explanations are as unsatisfactory as the answer of the gardener who, when asked, "Where is the hoe?" replied, "It's with the rake," and when asked, "Where is the rake?" replied, "It's with the hoe."

Scarcity will, in selected cases, go far toward explaining the rise of individual prices. But it will not go far toward explaining changes in the general level of prices—at least not before the beginning of the great war and only partly since that time.

All those who have offered explanations make one fatal mistake. They look at the wrong side of the market. They seek the causes wholly in the goods, the prices of which have changed, and not at all in the money, in terms of which those prices are expressed. It is hardly probable that commodities

should rise in price en masse without some simple explanation in common. This corresponds with common sense. We seldom have world feasts or world famines. If the corn crop is short in some places it is abundant in other places. If it is short in all places the crop of wheat or barley or some other staple food is practically certain to be at least normal. If there is war in Japan, it is not likely that there will also be war in Brazil. A world war or even anything as near to a world war as the present conflict is a most—*the* most—unprecedented event in all history.

Price Fluctuations Due to Money Conditions.—Our conclusion is that until recently, at least, it was a fall in the value of gold, or money, that had taken place, rather than a simultaneous rise in the value of everything else. We have direct statistics to indicate the same conclusion. These show that up to the outbreak of the war in 1914 there was no progressive scarcity of goods in general but rather an increased abundance, and that this continued to be true in the United States even after 1914, possibly up to our entrance into the war in 1917. Only during the war has there been, in this generation, a progressive scarcity of goods in general. Even during the war money inflation has been the more important factor.

That great price movements are chiefly monetary is evinced by the fact that countries of like monetary standards have like price movements. Thus—to consider gold-standard countries—there is a remarkable family resemblance between the curves representing the index numbers of the United States and England. Again, the price movements in silver countries show a strong likeness, as in India and China from 1873 to 1893. On the other hand, we find also a great contrast between gold and silver countries. Speaking roughly, we may say that between 1873 and 1896 the price level in gold countries fell 25 per cent and in silver countries rose 30 per cent.

In the present war the data are so meager that it is impossible to express the relations in exact figures, but we may arrange the different countries in the approximate order in which their prices have risen. As a result we find that the order of the nations corresponds, in general, with the order in which the currency in those nations has been inflated by paper as well as

with the order in which their monetary units have depreciated in the foreign exchange markets. This order—of ascending prices and of inflated currency—is: India, Australia, New Zealand, United States, Canada, Japan, Sweden, Switzerland, Denmark, Italy, Holland, England, Norway, France, Germany, Austria, and Russia. Confirmatory evidence is found in the fact that the ups and downs of prices correspond with the ups and downs of the money supply. Throughout all history this has been so.

The present war furnishes important examples of this. In the United States the curve for the quantity of money in circulation and the curve for the index number of prices run continuously parallel, the price curve following the money curve after a lag of one to three months, as might be expected, money being the cause and price the effect. It was in August, 1915, that the quantity of money in the United States began its rapid increase. One month later prices began to shoot upward, keeping almost exact pace with the quantity of money. In February, 1916, money suddenly stopped increasing, and two and a half months later prices stopped likewise. Similar striking correspondences have continued to occur with an average lag between the money cause and the price effect of about one and three-quarters months.

The conclusion toward which the foregoing and other arguments lead is that in the past the great outstanding disturber of the price level has always been money, and that at present the great outstanding cause of the high cost of living is money. It is curious that every time inflation of any kind has visited a country the public has had to be reëducated. The evils of colonial and continental paper money were forgotten by the generation of the Civil War, and the evils of the greenbacks are forgotten by most people to-day. At the present time we are confronted with still another kind of inflation, due not to specie but to the use of checks. In so far as we subscribe to our war loans out of money borrowed at the bank—that is, out of an increase of deposit currency and not out of real savings—we are adding to inflation and to its evil effect on the cost of living.

The Gold Dollar Fixed in Weight but Not in Purchasing Power.—Money is so much an accepted convenience in practice that it has become a great stumbling block in theory. Since we

talk always in terms of money and live in a money atmosphere, as it were, we become as unconscious of it as we do of the air we breathe. Some people, even intelligent people, bolster up the illusion that the dollar is a stable standard of value by reference to the fact that "the price of gold" never changes. Only recently a former Government officer asserted that the value of gold is evidently constant because its price is fixed!

I once asked a dentist if the "high cost of living" had affected the price of his materials.

"Yes, of course," he replied.

"Of the gold you buy for fillings?" I ventured jokingly, expecting him to know that this could not be.

To my surprise he answered, "I suppose so," and sent his assistant to look the matter up.

She returned presently and solemnly informed us that the price he paid for his gold was substantially the same now as it always had been during the thirty years he had been buying it.

"Isn't that surprising!" he exclaimed. "Gold must be a very stable commodity."

"It's just as surprising," I replied, "as that the price of a quart of milk is always two pints of milk."

"I don't see the point."

"Well, what is a dollar?" I asked.

"I don't know—what is it?"

That simple question is vital. The almost universal ignorance of the answer is chiefly responsible for the almost universal misunderstanding of the high cost of living! A dollar is 25.8 grains of standard gold—that is, of gold nine-tenths fine; and, since an ounce is 480 grains, the number of dollars in an ounce is $480 \div 25.8$, or 18.60. In other words, any 100-ounce lump of standard gold taken by a gold miner to the mint can be cut up and coined into 1860 dollars and handed back to him. Naturally he gets \$18.60 an ounce, and this "price" can never vary so long as the weight of the dollar does not vary.

Thus 100 ounces of gold will always be worth 1860 dollars of gold so long as 1860 dollars contain 100 ounces of gold; just as a quart of milk will always be worth two pints of milk so long as two pints make a quart. Gold is stable in terms of itself and in terms of itself only. Fixing the dollar at 25.8 grains of gold fixes the price of gold at \$18.60 an ounce. But,

of course, this fixity of dollar weight, or of gold price in terms of gold, does not fix its price or value in terms of other commodities. It does not release gold from the effects of supply and demand. The value of the dollar, as shown by its general purchasing power, is not stable but fluctuates with supply and demand as does the value (or purchasing power) of anything else. There is only this difference: Since a descending value of gold cannot lower the price of gold it must raise the prices of other things in terms of gold; and since an ascending value of gold cannot raise the price of gold, it lowers the prices of other things in terms of gold. The supply and demand of gold and of other things which affect the real value or purchasing power of gold cannot be thwarted. Since we deny to supply and demand of gold the normal outlet of raising or lowering the price of gold, they take their revenge by lowering or raising the prices of other things.

If, instead of gold, we were to make milk the standard, or eggs—that is, if we used these to purchase all other things—they would acquire the same fixity of price—that is, price in terms of milk or eggs; and we would fall victims to the same illusion of inherent fixity. If a dollar, instead of being 25.8 grains of gold, were, let us say, a dozen eggs, obviously the price of eggs would always be a dollar a dozen simply because a dollar is a dozen eggs. If the hens did not lay, the price of eggs would not rise (or vary at all), but, instead, the prices of other commodities in terms of eggs would fall; while if eggs were a drug on the market, their price would not fall (or vary at all), but the prices of other commodities, in terms of eggs, would rise—and the mystified public would then be inquiring gravely, "Why this high cost of living?" The world's prices would then be at the mercy of hens just as now they are at the mercy of mines.

We have been deceived by appearances in commerce just as we have been deceived by appearances in astronomy. The earth seems to be fixed and all the other heavenly bodies seem to move.

An increase of money, then, always tends to raise prices. It was thus that prices rose in the mining camps of California a half dozen decades ago and in Colorado and the Klondike one or two decades ago. This local rise of prices soon communicated itself to other places; for the price level cannot in one locality greatly exceed that in a neighboring locality without causing

an export of money to the locality of the lower level. Thus new money gradually finds its way into circulation throughout the world, raising prices as it flows from place to place, the process consisting, in all cases, of the effort on the part of somebody to get rid of an inconvenient surplus—a surplus which cannot be dissipated by transferring it from hand to hand but only by a rise of prices. Of course, the price level is affected not only by the quantity² of money. It is affected also by credit currency—that is, the so-called “money I have in the bank,” which one pays out in checks. Moreover, the price level is affected by the rapidity of circulation both of money and of deposit currency and by the amount of commodities in trade. The price level may rise because of an increase of money or of deposit currency, or because of their rapidity of circulation, or because of a decrease in the volume of trade. And back of these causes (money, deposits, their velocities, and trade) lie innumerable other causes acting through one or more of them.

THE EVILS OF PRICE MOVEMENTS

But what of it all? Even if the value of the dollar is constantly changing, is there any real harm?

If, for each one of us, the rise of income were to keep up exactly with the rise in cost of living, then the high cost of living would have no terrors; it would be merely on paper. But no such perfect adjustment ever occurs or can occur. Outstanding contracts and understandings in terms of money make them out of the question.

Unjust Transfer of Property.—Consider the debtor and creditor. If Congress should suddenly decree that each present “dollar” should henceforth be two dollars, it is clear that, in practice, the change would not be simply nominal, or a mere matter of bookkeeping. Every creditor, every bondholder, every bank depositor would clearly be cheated out of half his due. If, on the other hand, Congress should decree that what has hitherto

² There are still a few students of money who do not accept any form of the “quantity theory” of money. (Fortunately, however, the proposal here made for stabilizing the dollar is not bound up with this theory, although the theory is, I believe, when properly stated, correct.)

been a "dollar" should henceforth be fifty cents, every debtor would be suddenly saddled with a weight of debt twice as heavy as that which he had originally assumed. The same principle of hardship applies to any change in the purchasing power of the dollar even when, as is ordinarily the case, it is unintentional. Moreover, it cannot properly be said that human responsibility is not a factor. Congress, which, under the Constitution, has the power to regulate the value of money, lets that value go unregulated. With each change in the purchasing power of money (in other words, with each change in the price level) some people lose what properly belongs to them and others gain what does not properly belong to them. Our sense of "social justice" is offended.

Cheating of Savings Depositors and Bondholders.—Consider a working girl who put a hundred dollars in the savings-bank in 1896. To-day, if she has allowed it to accumulate at 3 per cent interest, she has two hundred dollars. But when she tries to spend her two hundred dollars, she finds that things cost about double what they did in 1896. Thus she gets for her entire two hundred dollars to-day only as much as she could have bought for her original one hundred dollars at the beginning. After a score of years of self-denial, where is her reward, her interest? She has been (without the intention of anybody) cheated out of all her interest through the depreciation of the "dollars" in terms of which her savings-bank account has been kept! Her interest accrued only fast enough to offset the depreciation in her principal. Like Alice Through the Looking-glass she has had to run as fast as she could in order to stand still! The bondholder is in the same plight. If he has been "living on his interest" the purchasing power of his principal has been decreasing, so that really, although without knowing it, he has been living on capital. To keep his capital unimpaired he would have had to reinvest *all* his interest!

The total financial interests thus affected by changes in the price level are colossal. Shortly before the war Alfred Neymarck estimated the total securities then circulating in the world at 175 to 200 billion dollars! Now, of course, the volume of securities is greater, and the war bonds promise to swell the total by 50 per cent. And besides negotiable securities there are many

private debts which never circulate. There are savings-bank deposits and deposits in ordinary banks running up into scores of billions. Scores of billions of dollars in insurance contracts of various kinds are in existence, many of them running for long terms, such as the span of human lives.

Since the fall of 1915 the dollar has suffered a loss of purchasing power of about 25 per cent per annum. Consequently bondholders owning titles to a fixed number of dollars have not only lost all of their interest of, say, 5 per cent but 20 per cent per annum of their principal besides! The total shift each year must now run up into many billions. At the end of this war millions of people in the United States will own Liberty Bonds; millions will hold War Savings Certificates; millions will be financially interested in the soldiers' insurance, the total of which is expected to exceed a score of billions of dollars, and all these people will be in addition to the millions who already hold savings in the banks or own mortgages or bonds. In Europe, of course, the shift between contracting parties has been even more rapid, because the depreciation of their money has gone on more swiftly. The net effect is really to filch the major cost of the war from the bondholders, old and new (including widows and orphans, colleges and hospitals, and Liberty Bond holders as well), and savings-bank depositors.

Suffering of Salaried Classes Is Cause of Unrest.—The salaried men and, to some extent, the wage earners suffer—that is, the cost is borne by those with relatively “fixed” incomes. With millions of people to be affected and hundreds of billions of dollars stipulated in contracts or otherwise fixed or understood, it becomes a matter of grave concern to the whole world what the “dollar” in these contracts and understandings is to be. When prices rise great profits are made, because, as we have seen, the “profiteer” or stockholder wins without effort from the bondholder and from the salaried and wage employees. His easy profits lead him to “extend himself” until, when interest charges, rents, salaries, and wages catch up, his prosperity ceases, he gets caught in debt and becomes a bankrupt, and a general crisis or even panic may ensue. Every rise in the cost of living brings new recruits to the malcontents who feel victimized by society and have come to hate society. They cite, in their indictment,

the high price of necessities and the high profits of certain great corporations, both of which they attribute, not to the aberrations of our monetary yardstick but to deliberate plundering by "profiteers" or a social system of "exploitation." They grow continually more suspicious and nurse an imaginary grudge against the world. We are being threatened by more quack remedies—revolutionary socialism, syndicalism, and Bolshevism. Radicalism rides on the wave of high prices.

When the history of this war is written, it may well be that we shall find that the growing popular unrest caused by the high cost of living, the atmosphere of suspicion engendered, and the desire for relief through a policy of commercial expansion had something to do in giving a pretext for, if not causing, the great war. In fact, before the war rising costs of living were manufacturing socialists all over the world, including Germany, and the German Government may have weighed, as one of the expected dynastic advantages of war, the suppression of the growing internal class struggle which this high cost of living was bringing on apace.

Fluctuations Produce Instability and Crises.—We have seen that the primary evil of these aberrations is social injustice, a sort of subtle pocket picking. At first glance it might seem that such a transfer is not a general evil, for what some lose others gain. But the secondary evils *are* very general, namely, the evils from speculation, uncertainty, crises, depression, resentment, violence, and ill-considered legislation. Thus, curiously enough, as with ordinary gambling, even the ill-gotten gains of the winners are largely swept away in the end. Thus, as at the present time, when prices are rising, the strikes, riots, and violence which are the secondary effects of rising prices destroy the profits of the winners by blocking the wheels of industry and even destroying its tools. If we are going to have discontented workmen smash our windows and our machinery, it is not so much a question of who is going to get the profits as a question of whether there are going to be any profits.

Similarly when, during a period of falling prices, the vampire is not the profit-taker but the creditor, the winner is also apt to lose his winnings. The bondholder is usually and normally the simple investor of capital, the "silent partner" in business. He lacks

the temperament and training to be a captain of industry. But, after years of falling prices, during which he has been draining, unobserved, the life-blood of the enterprise whose bonds he holds, until there is no profit left for the captain of industry who has been managing it, the mortgage is foreclosed and the captain, held responsible for the shipwreck, is forced out, discredited, humiliated, and unable to articulate or even to understand that it was not wholly his fault, if at all, but the fault of his instrument of reckoning, the dollar. Thereupon the bondholder is forced to take control. Thus the management drifts into wrong hands, turns into mismanagement, and the bondholder is hoist with his own petard. He has been an unconscious Shylock, exacting his pound of flesh until he has overreached himself. As David Harum wisely said, "It's not a bad idea to let the other fellow make a dollar once in a while." In short, almost no one gains long or gains much either from rising prices or falling prices. Either implies enormous social wastes. Therefore, to society as a whole, there is a great net loss, just as there would be from confusion and uncertainty in the yardstick of length or in the pound of weight.

THE REMEDY ³

We are now ready for the practical question, "What are you going to do about it?"

There are really two problems included in "the high cost of living"—(1) the problem of the number of dollars in our income and (2) the problem of how much each of these dollars will buy. The plan which I shall propose has reference to the solution of this second problem—the problem of the purchasing power of the dollar. Almost none of the other remedies for "the high cost of living" would have any direct or substantial effect on the general level of prices. I do not except price fixing, though from that the public is now expecting a great deal. The largest reduction effected through recent price fixing has been the reduction of 70 per cent in the price of steel plates; and this re-

³ I find that, in most essentials of the plan described here, I have been anticipated by several others, including Simon Newcomb, the astronomer, and Alfred Russel Wallace, the naturalist. See "Objections to a Compensated Dollar Answered": *Am. Econ. Review*, December, 1914, and the prospective book referred to below.

duction, great as it is, has had almost no effect on the general price level. The index number of the United States Bureau of Labor Statistics, embracing three hundred commodities of which steel plate is one of the least important, is reduced thereby only one-third of 1 per cent! Even if we reduce the price of wheat and coal by 10 per cent the effect on the index number is only 1 per cent. When we remember that few reductions attempted through price fixing have exceeded 10 per cent and that the total number of articles affected is not large, being chiefly confined to a few individual foodstuffs, fuels, and metals, we shall realize that price fixing, however drastic and however useful for other purposes, can never greatly affect the general price level—that is, the price level of that inconceivably great and ponderous mass of goods which makes up our commerce.

Fix the Purchasing Power of a Dollar.—The real culprit being the dollar, the real remedy is to fix the purchasing power of the dollar.

I have in preparation a book on the subject ("Stabilizing the Dollar," Macmillan) which will go into more detail than is here possible. But the essence of the plan is very simple.

Our dollar is now simply a fixed weight of gold—a unit of weight, masquerading as a unit of value. A twentieth of an ounce of gold is no more truly a unit of value or general purchasing power than a pound of sugar or a dozen eggs. It is almost as absurd to define a unit of value, or general purchasing power, in terms of weight as to define a unit of length in terms of weight. We would scarcely define a yardstick as any stick which weighs an ounce. There used to be a song about a shopkeeper who, being asked the price of a box of socks, replied, "One dollar a box." "I'll take the box," said the customer, handing over his dollar; whereupon the shopkeeper took out the socks and handed over the box. "I sold you the box, not the socks," said he. Our dollar is somewhat like that box. It keeps its form but loses its contents. The removal, in this case, is not intentional or committed by one of the parties to the contract, but so much the worse!—for the injured party has no recourse. It is as if the buyer of the box of socks were forced to agree in advance to let a bystander remove or insert socks ad libitum.

What good does it do us to be assured that our dollar *weighs* just as much as ever? Does this fact help us in the least to bear the high cost of living? We complain of the dollar, and justly, that it will not go as far as it used to. We want a dollar which will always buy the same aggregate quantity of bread, butter, beef, bacon, beans, sugar, clothing, fuel, and the other essential things that we spend it for. What is needed is to stabilize or standardize the dollar just as we have already standardized the yardstick, the pound weight, the bushel basket, the pint cup, the horse-power, the volt, and, indeed, all the units of commerce except the dollar. All these units of commerce have passed through the evolution from the rough and ready units of primitive times to the accurate ones of to-day, when modern science puts the finest possible point on measurements of all kinds. Once the yard was defined, in a rough and ready way, as the girth of the chieftain of the tribe and was called a gird. Later it was the length of the arm of Henry the First, and still later the length of a bar of iron in the Tower of London. To-day we have at Washington a Bureau of Standards where the modern yardstick is determined by a bar of metal amalgam noted for its insensibility to changes in temperature but nevertheless kept in a room of constant temperature, under a glass case, and not approached by the observer, lest the warmth of his body should cause it to vary, but sighted through a telescope across the room!

Except the dollar, none of the old rough and ready units are any longer considered good enough for modern business. The dollar is the only survival of those primitive crudities. Imagine the modern American business man tolerating a yard defined as the girth of the President of the United States! Suppose contracts in yards of cloth to be now fulfilled which had been made in Mr. Taft's administration!

And yet the shrinkage in such a yardstick would be no greater than the shrinkage we have suffered in the far more important yardstick of commerce, the dollar; and this yardstick is used, not only in the few contracts in which the yardstick of length is named, but in all contracts of business! We tolerate our crazy dollar only because the havoc it plays is laid to other agencies. If its victims knew the truth about the dollar it would be put in a strait-jacket at the very next session of Congress;

for the evils of it—evils of confusion, uncertainty, social injustice, discontent, and disorder—are as vast as would be the evils if all the other units of commerce—the yardstick, the bushel basket, the hour of work, etc.—should be left to the tender mercies of chance.

And yet we tenaciously keep to that standard in the blissful assumption that it never varies, justifying this illusion by noting that the price of gold, in terms of itself, always remains \$18.60 an ounce, nine-tenths fine! We seem to like to humbug ourselves.

Any Single Commodity Is Too Variable a Standard.—A true standard of value, or general purchasing power over commodities, should not be dependent on one commodity merely, whether that commodity be gold or silver or wheat or what not.

Two commodities would be better than one, just as two tipsy men walk more steadily arm in arm than separately. Whenever they tend to lurch in opposite directions they neutralize each other. This is the argument which used to be urged for bimetallism, symmetallism, and other plans for uniting gold and silver. And the argument applies whenever gold and silver move in opposite directions, as from 1873 to 1896. If, for instance, a generation ago we had adopted a dollar of an amalgam⁴ consisting of half of the former gold dollar and half of the former silver dollar, our price level would not have suffered the rapid fall it did prior to 1896 in common with the units of other gold-standard countries, nor would it have suffered the rapid rise which the units of silver-standard countries experienced. It would have kept intermediate between the diverging price movements of gold countries on the one hand and silver countries on the other.

But such an amalgam of only two commodities, while in many cases it would be steadier than either and in all cases steadier than the less steady of the two, would not really be very steady. A composite of gold, silver, copper, platinum, and all the other metals would be somewhat more stable than an amalgam of two, just as a number of tipsy men can walk more steadily arm in arm than two only, it being wholly unlikely that all the men in the

⁴ A bill for this purpose was actually proposed in 1879 by Congressman Stephens. (Hepburn, "History of Currency in the United States," p. 288.)

line will lurch in the same direction at the same instant. The lurching of some in one direction can always be depended on to offset materially the lurching of others in the other direction. We can usually trust to luck if there is enough of it!

But why use metals? The index numbers of the United States Bureau of Labor Statistics show that the group of "metals and metal products," taken as a whole, is the most erratic of all the groups⁵ of commodities.

The Multiple Standard of Commodities.—In order to secure a dollar constant in its purchasing power over goods in general, it should, in effect, be a composite of those very goods in general. For instance, we might imagine a composite commodity dollar consisting of 2 board feet of lumber (made up of various kinds); $\frac{1}{20}$ of a bushel of wheat; $\frac{3}{4}$ of a pound of steers; $\frac{1}{2}$ of a pound of meat; 30 pounds of coal; $\frac{1}{100}$ of a barrel of white flour; 1 pound of sugar; $\frac{1}{2}$ of a pound of hogs; $\frac{1}{3}$ of a pound of cotton; $\frac{1}{3}$ of a gallon of petroleum; 1 egg; 1 pint of milk; 1 ounce of butter; $\frac{1}{30}$ of a bushel of corn; $\frac{1}{25}$ of a bushel of potatoes; $\frac{1}{100}$ of a pair of shoes; $1\frac{1}{2}$ pounds of hay; 1 ounce of hides; 1 ounce of tobacco at the farm; $\frac{1}{2}$ of an ounce of manufactured tobacco; $1\frac{1}{2}$ ounces of lard; $\frac{1}{2}$ of an ounce of leather; $\frac{1}{7}$ of an ounce of wool; $\frac{3}{4}$ of a pound of steel; 1 ounce of copper; $\frac{1}{10}$ of an ounce of rubber; $\frac{1}{300}$ of a gallon of alcohol; 2 ounces of soap.

These happen to be the relative quantities of some of the three hundred commodities used by the United States Bureau of Labor Statistics in making up its index number of prices. The entire list, of which the articles specified are the more important, was actually worth one dollar in 1909.

If at that time we had established such a dollar as our unit—that is, a composite dollar consisting of a big basket containing those three hundred bits of goods—that composite basketful of commodities—or "goods-dollar," let us call it—would evidently have to be worth a dollar at all times; and the cost of living—at least the cost of the representative assortment in that basket—

⁵ The groups are nine, namely: farm products; food, etc.; clothes and clothing; fuel and lighting; metals and metal products; lumber and building materials; drugs and chemicals; house furnishing goods; and miscellaneous.

could not rise or fall. That assortment would always cost a dollar simply because a dollar is that assortment. In short, it would be just as simple then to keep the price of the composite package of 300 commodities invariable (however widely its constituents might vary among themselves) as it is now to keep the price of gold invariable. The price of that composite would always be a dollar, just as to-day the price of gold is always \$18.60 an ounce, and just as, under an egg standard, the price of a dozen eggs would always be a dollar, and just as, with an amalgam of gold and silver, the price of that amalgam would be constant however much its constituents might vary relatively to one another.

Even this composite or goods-dollar might not be ideal and constitute an "absolute" standard of value, but no one will deny that it would be a great practical improvement over our present standard—just as great an improvement as it was, for instance, to adopt for the unit of length the length of the king's arm, instead of the girth of the chieftain of the tribe.

And this composite goods-dollar is not altogether a joke. I am going to suggest its adoption!

Perhaps some scornful reader is now eager to point out how inconvenient, not to say grotesque, such a dollar would be if it were in circulation or were used for export or import. With its 30 pounds of coal, it is far too heavy to carry; with its coal and wood and hay, it is far too bulky for the pocket; its solitary egg would spoil; while to divide a pair of shoes into a hundred parts would annihilate its value. Gold is to be preferred because it is imperishable, easily divisible, easily portable, and easily salable. And these are precisely the attributes which led us to select gold; and not, as some people mistakenly assume, any attribute of stability.

Gold a Medium of Exchange Used with a Commodity Standard of Value.—By all means, then, let us keep the metal gold for the good attributes it has—portability, durability, divisibility, salability—but let us correct its instability, so that one dollar of it will at all times buy approximately that composite basketful of goods. Money to-day has two great functions. It is a medium of exchange and it is a standard of value. Gold was chosen because it was a good medium, not because it was a good standard.

The argument that gold became money because it was thought

to be a good standard of value is, so far as I can find out, an unfounded myth. Indeed, when it came into use as money, there were no index numbers and there was therefore no way of testing its stability or instability; and finally at that time there was not much need and not much thought of a standard of value, for the good and sufficient reason that there were few if any time contracts, such as promissory notes, mortgages, or bonds. Almost all bargains were struck and settled on the spot. When a man was about to make a cash purchase it was immaterial to him what the monetary unit was.

But to-day if a man buys an article and promises to pay for it in three months the case is different. When the time for payment arrives it is very important for him to know whether the "dollar" is the same as was contemplated when the agreement was made. With our network of long-time contracts, running months, years, generations, or even centuries, including hundreds of billions of dollars in promises to pay money—promissory notes, mortgages, debentures, railway bonds, Government bonds, leases, etc.—the function of a standard of value—that is, a standard of deferred payments—has grown to be perhaps the more important of the two functions of money.

In short, because our ancestors found a good medium of exchange, we now find ourselves saddled with a bad standard of value. The problem before us is to retain gold as a good medium and yet to make it into a good standard; not to abandon the gold standard but to rectify it; not to rid ourselves of the gold dollar but to adapt it to the composite or goods-dollar. Under the plan here to be presented, gold is retained as the ultimate means of redemption. There is essentially the same mechanism by which gold freely enters or leaves the circulation. But under this plan the gold dollar will become a standard of value instead of a standard of weight. We now have a gold standard that is forever fluctuating. It is a gold standard with the "standard" left out! The proposal is really to put the standard into the gold standard—to standardize the dollar.

Vary the Weight of the Dollar.—The method of rectifying the gold standard consists in suitably varying the weight of the gold dollar. The gold dollar is now fixed in weight and therefore variable in purchasing power. What we need is a gold dollar fixed

in purchasing power and therefore variable in weight. I do not think that any sane man, whether or not he accepts the theory of money which I accept, will deny that the weight of gold in a dollar has a great deal to do with its purchasing power. More gold will buy more goods. Therefore more gold than 25.8 grains will buy more goods than 25.8 grains will buy. If to-day the dollar, instead of being 25.8 grains, or about one-twentieth of an ounce, of gold, were an ounce or a pound or a ton of gold, it would surely buy more than it does now, which is the same thing as saying that the price level would be lower than it is now.

A Mexican gold dollar weighs about half as much as ours and has less purchasing power. Certain South American dollars are still lighter and have correspondingly less purchasing power. A friend reports that in Colombia he paid fifteen dollars for a shoe shine. Now, if Mexico or Colombia should adopt the same dollar that we have and that Canada has, no one could doubt that its purchasing power would rise—that is, the price level in Mexico and Colombia would fall. If the heavier or the lighter the gold dollar the more or the less will be its purchasing power, it follows that if we add new grains of gold to the dollar just fast enough to compensate for the loss in the purchasing power of each grain, or vice versa take away gold to compensate for a gain, we shall have a fully "compensated dollar," a stationary instead of a fluctuating dollar, when judged by its purchasing power.

But how, it will be asked, is it possible, in practice, to change the weight of the gold dollar? The feat is certainly not impossible, for it has often been accomplished. We ourselves have changed the weight of our gold dollar twice—once in 1834, when the gold in the dollar was reduced 7 per cent, and again in 1837, when it was increased one-tenth of 1 per cent. If we can change it once or twice a century, we can change it once or twice a month!

Use Paper for Currency and Abolish Gold Coins.—And if we use paper representatives of gold exclusively, instead of some paper and some gold coins, these monthly changes in the weight of the gold dollar can be made even more easily than the occasional changes were made which history records. In actual fact, gold now circulates almost entirely through "yellowbacks," or gold certificates. The gold itself, often not in the form of coins at

all but of "bar gold," lies in the Government vaults. A bar of gold nine-tenths fine weighing 25,800 grains is just as properly to be called one thousand dollars of 25.8 grains each as if that bar were cut up into a hundred separate pieces and each were stamped into a ten-dollar gold piece. The thousand gold dollars already exist embedded or welded together in the gold bar, while the right of ownership in them circulates in the form of paper "yellowbacks." Since, then, even to-day most of our gold dollars do their circulating in the form of paper, what inconvenience would it cause if the only circulation of gold were in the form of paper? Most of the people in England who before the war carried gold in their pockets by preference have already been weaned from the habit; and most of the few Americans, in California and Oregon, who still do so will soon be weaned from it in the same way.

It would therefore be little more than expressing in law an existing custom if gold coins were abolished altogether. For simplicity, we shall assume that this has been done. When, therefore, I speak of changing, from time to time, the weight of the gold dollar, the reader need not conjure up visions of repeated recoinage or visions of gold eagles of various weights jangling together in confusion in the market place. Let him rather banish gold coins entirely from his mind and think of a dollar as simply a number of grains of gold bullion in the vaults of the United States Treasury, that number changing from time to time but always definite and specific at any time, and let him remember that in actual circulation this gold bullion is represented by yellowbacks.

The abolition of gold coin would make no material change in the present situation. Gold would, just as at present, be brought by the gold miner to the mint or the assay office or other Government depository, and he would, just as at present, receive paper tokens or yellowbacks in return. This sale of gold to the Government for yellowbacks—that is, this free deposit—is really the essence of the so-called "free coinage." It is thus that gold gets into circulation, through its representative, the yellowback.

Moreover, the gold in the Treasury would serve, just as at present, for the redemption of the gold certificates. The jeweler or gold exporter would, just as at present, obtain gold for his purposes by exchanging yellowbacks for gold at the Treasury. Every dollar of gold whose corresponding yellowback was thus

taken out of circulation would reappear as bullion in the arts or be added to foreign circulation. The process would therefore be virtually a flow of gold dollars, of fixed value but variable weight, from the circulation into the arts or abroad. Such exchange is the ultimate "redemption" of gold certificates. The usual object of redemption is either the export or melting of gold. The Scandinavian banks keep some of their gold abroad all the time, being allowed to count such gold as reserve. When someone presents notes to them in order to get gold to send to London he simply receives the ownership of some of the gold already in London.

Thus free coinage, or rather free deposit, and free redemption would go on substantially as at present, the one increasing and the other decreasing the volume of bullion certificates—that is, the virtual gold in circulation. The essential mechanism of our gold-standard system may be pictured as a lake of gold in circulation in the form of yellowbacks fed by "free coinage," or deposit by miners, and drained by free redemption, or withdrawal by jewelers and exporters.

If gold thus circulated only in the form of paper representatives it would evidently be possible to vary at will the weight of the gold dollar without any such annoyance or complication as would arise from the existence of coins. The Government would simply vary the quantity of gold bullion which it would exchange for a paper dollar—the quantity it would give or take at a given time. As readily as a grocer can vary the amount of sugar he will give for a dollar, the Government could vary the amount of gold it would give or take for a dollar. To-day the Government will give 25.8 grains of gold bullion to the jeweler or exporter for each dollar of certificates⁶ he pays in; next month it might give 26 grains or only 24 grains. These respective increases or decreases would of course be made for the purpose of compensating the decreases or increases in the purchasing power of the dollar.

⁶ The wording on the certificates would of course need to be slightly changed. They could no longer be properly called warehouse receipts, nor would they be exactly analogous to Government notes; they would be intermediate between the two. They might be described as "gold-dollar certificates." They would be redeemable at any time in the then official weight of the gold dollar—a variable weight but constant worth, instead of the converse, as at present.

Periodic Variation of Weight Based on Index Number.—But, it will now be asked, what criterion is to guide the Government in making these changes in the dollar's weight? Am I proposing that some Government official should be authorized to mark the dollar up or down according to his own caprice? Most certainly not. A definite and simple criterion for the required adjustments is at hand—the now familiar “index number” of prices. The Bureau of Labor Statistics, which now publishes an index number, the Bureau of Standards, or other suitable Government office, would be required to publish this number at certain stated intervals, say monthly. That is, each month the bureau would calculate from current market prices how much would have to be paid for our composite basket of goods. This figure it would publish and proclaim; and this figure would then afford the needed official sanction to the Secretary of the Treasury to change the rating of the gold dollar—that is, to change the amount of gold which the mint would give or take for a gold certificate, and thus increase or diminish the purchasing power of that certificate. The certificate would always be equal to the gold dollar; and the gold dollar would be kept equal to the goods-dollar, which is the ultimate standard. If, for instance, the index number representing the current price of our composite basket of goods is found to be 1 per cent above the ideal par—that is, above the one dollar price it had at first—this fact will indicate that the purchasing power of the dollar has gone down; and this fact will be the signal and authorization for an increase of 1 per cent in the weight of the gold dollar. For what is added to the weight of the gold dollar will be automatically registered in the purchasing power of its circulating certificate.

If you ask how I know that this 1 per cent increase in the weight of the gold dollar is just sufficient to drive the index number (or price of our composite basket of goods) back to par (or one dollar), I answer that I don't know, any more than I know, when the steering wheel of an automobile is turned, that it will prove to have been turned just enough and not too much. Many things may interfere in a month. But if the correction is not enough, or if it is too much, the index number next month will tell the story. Absolutely perfect correction is impossible, but any imperfection will reappear at the next date for adjustment and so cannot escape ultimate correction.

Suppose, for instance, that next month the index number is found to remain unchanged at 101. Then the dollar is at once loaded an additional 1 per cent. And if, next month, the index number is, let us say, $100\frac{1}{2}$ (that is, one-half of 1 per cent above par), the one-half of 1 per cent will call for a third addition to the dollar's weight—this time one-half of 1 per cent. And so, as long as the index number persists in staying even a little above par, the dollar will continue to be loaded each month, until, if necessary, it weighs an ounce—or a ton, for that matter. But, of course, long before it can become so heavy, the additional weight will become sufficient; so that the index number will be pushed back to par—that is, the circulating certificate will have its purchasing power restored.

Or suppose the index number falls below par, say 1 per cent below. This fact will indicate that the purchasing power of one dollar has gone up. Accordingly, the gold dollar will be reduced in weight 1 per cent, and each month that the index number remains below par the now too heavy dollar will be unloaded and the purchasing power of the certificate brought down to par. Thus by ballast thrown overboard or taken on, our index number is kept from wandering far from the proper level—that is, from the price of one dollar per composite basket of goods. In short, the adjustment, like all human adjustments, takes place "by trial and error." There is always a slight deviation, but this is always in process of being corrected. The steering wheel keeps the monetary automobile, not exactly in the straight line marked out, but always near it on one side or the other, so that its deviation will always afford the criterion needed for steering it back.

It does not matter in the least what the cause or causes of deviation may be. They may be connected with gold or bank credit or anything else. The deviation, no matter how caused, would bring a counterbalancing change in the gold dollar's weight and the change in that weight would go on every month as long as the deviation in the index number continued. The result is that the price level would oscillate only slightly. Instead of great price convulsions, such as we find throughout history, the index number would run, say 101, $100\frac{1}{2}$, 101, 100, 102, $101\frac{1}{2}$, 100, 98, 99, $99\frac{1}{2}$, 100, etc., seldom getting off the line more than 1 or 2 per cent.

The process of correcting the dollar has just been likened to testing an automobile. It might better be compared to the automatic regulation of the "governor" on a steam engine or to the method of securing a "compensated" pendulum. Every aberration brings its own correction. And so we conform our gold dollar, approximately, to the composite or goods-dollar. Each dollar of bank notes and other fiduciary money would, as now, be redeemable in a dollar of yellowbacks, and therefore such paper money would be, exactly as now, at parity with yellowbacks. Each dollar of these yellowbacks, or gold-dollar certificates, would, in turn, be redeemable at the Government offices in a good dollar in dollar and would, therefore, always be of equal value therewith, and finally, each dollar of gold bullion would, by periodic adjustment of its weight through an index number, be kept very nearly equivalent to the imaginary basket of goods described as the composite dollar.

All dollars, bank notes, etc., yellowbacks, and gold bullion would be absolutely equivalent to one another and would be approximately equivalent to the composite or goods-dollar. We would then be substantially rid of a fluctuating price level with its long trains of bad consequences. The monetary yardstick would at last be standardized.

To complete the statement of the plan, one proviso needs still to be mentioned. To avoid speculation in gold at the expense of the Government, a small fee, corresponding to what used to be called "brassage," should be charged to depositors of gold, and no single change in the dollar's weight should exceed that fee.

This is a technical detail and, with other technical points, such as the status of the reserve behind the gold-dollar certificates, the initial par of the index number, the selection and revision of the items making up the composite dollar, the possible retention of gold coins and coinage, etc., need not here be entered upon. What has been said is meant—and is enough—to show that we have the power, if we will but use it, to stabilize the purchasing power of the dollar and therefore to stabilize also the general level of prices.

CONCLUSION

Summary of Plan.—The plan, then, as above set forth, is, in brief:

(1) To abolish gold coins and to convert our present gold certificates into "gold-dollar certificates" entitling the holder to dollars of gold bullion of such weight as may be officially declared from time to time.

(2) To retain the virtual "free coinage"—that is, deposit—of gold and the free redemption of gold-dollar certificates.

(3) To designate an ideal composite goods-dollar consisting of a representative assortment of commodities, worth a dollar at the outset, and to establish an index number for recording, at stated intervals, the market price of this composite dollar in terms of the gold dollar.

(4) To adjust the weight of the gold-bullion dollar at stated intervals, each adjustment to be proportioned to the recorded deviation of the index number from par.

(5) To impose a small "brassage" fee not to exceed any one change in the gold dollar's weight.

The plan should, of course, start off with the price level actually existing immediately before its adoption. There would therefore be no shock in adopting the goods-dollar as our unit by varying the weight of gold bullion to represent that goods-dollar. In fact, there would be less shock than when we adopted standard time and changed our watches accordingly. Just as the time engagements of the whole world have been modified and simplified by the shift of watches from local to standard time, or, more recently, by the shift for "daylight saving," so the money engagements of commerce would all be put on a true standard without jar or confusion.

Substantially the same kinds of money would be passed from hand to hand as before the system was adopted, and the ordinary man would be quite unaware of any change, as unconscious, in fact, of the operation of the new system as he is now unconscious of the operation of the present system, or as were the inhabitants of India when the "gold exchange" standard went into force a quarter of a century ago.

The Essential Point.—The crux of the plan lies in the steering rule by which the index number regulates the dollar's weight. Its significance is that to keep the gold dollar from shrinking in value we make it grow in weight, thus recognizing that a depreciated dollar is a short-weight dollar; and reversely, to keep the

dollar from growing in value we make it shrink in weight, thus recognizing that an appreciated dollar is an overweight dollar.

Or again, since a heavier or lighter dollar simply means a lowered or raised price of gold, we may say that to keep the level of prices of other things from rising or falling we make the price of gold itself fall or rise.

At present, with a dollar always weighing 25.8 grains, the price of gold, nine-tenths fine, is always \$18.60 an ounce. However much gold may really depreciate, our artificially defined dollar creates an artificially fixed price. It does not allow gold depreciation to show itself in a lowered price of gold. Consequently it shows itself abnormally—in the raised prices of other things. It is, I submit, both wrong and absurd thus to force other things to register the fluctuations in the value of gold. When gold depreciates, its price should fall. Furthermore, when the price of anything else, say corn, rises, we ought to be able, as we are not now, to be reasonably sure that this rise represents a rise in that corn and not a fall in gold.

At present the Government is not authorized by law to mark gold down when it goes down and up when it goes up. The grocer can mark his goods up or down, incidentally including even the depreciation or appreciation of gold. He can increase or decrease the number of pounds of sugar he will give for a dollar. But the Government is helpless. When a flood of gold pours in from Cripple Creek or the Rand, or from war-ridden Europe, the Government is not permitted to increase the weight of a dollar's worth of gold above 25.8 grains or to decrease the price of gold below \$18.60 an ounce. Instead, therefore, there is a redundant currency and a "high cost of living." If, on the other hand, as may be the case after the war, exporters demand our gold, our Government is equally helpless to reduce the weight of a dollar's worth of gold below 25.8 grains or to raise the price of gold above \$18.60 an ounce, and a violent contraction of the currency will follow.

The system now operates spasmodically through additions to our currency by the miners and subtractions from it by the jewelers and exporters, all according to the vagaries of the gold supply and the gold demand. Thus do we leave our yardstick of commerce to the chances of the gold market and whatever influences affect that market.

The only classes which would notice the change as a result of the proposal would be the gold miners and importers of gold bringing gold to the mint, who would find that the price they could get would not always be \$18.60 per ounce, and the jewelers and exporters desiring gold bullion, who would find that the price they would have to pay to the Treasury would not always be \$18.60 per ounce.

A Fixed Standard Would Prevent Involuntary Theft.—Our National Constitution forbids the States to impair the obligation of contracts, and the National Government itself is supposed to conform to the principle of this prohibition (with certain exceptions, such as bankruptcy laws). But with our variable yardstick of commerce the conformity is, at best, to the letter, not the spirit, because the letter of the contract and the law fix the obligation in gold by weight, but the contracting parties are not concerned with what a gold dollar weighs; usually in fact they do not even know that a dollar is only a weight unit. The meeting of their minds is on the basis of what a dollar is worth in commerce, and they make little allowance for any change in that worth.

Thus, under the very protection of the constitutional provision mentioned, one of the parties to the contract always robs the other to some extent. This social pocket picking, unconscious but real, would, if our monetary yardstick were regulated, cease; and with it would cease also discontent, jealousy, and suspicion in so far as these grow out of that species of social injustice. Crises and depressions of trade would be reduced in their intensity, if not rendered impossible. The fundamental reason for much unsound speculation would be taken away.

The proposal here made is simply to authorize a raising or lowering of the sluice gates by which gold flows in or out, so as to keep our money lake at a uniform level. By increasing or decreasing the dollar's weight, we would thus be providing against either a flood or a drain of money. The plan would put a stop, once for all, to a terrible evil which for centuries has vexed the world, the evil of dislocating contracts and monetary understandings. All contracts, at present, though nominally carried out, are really tampered with as truly as if false weights and measures were used for delivering coal or grain. Business, now

periodically disturbed by the pranks of our mischievous dollar, would be put on a securer foundation than ever before; for the greatest and most universal uncertainty or gamble, all the more disastrous because unseen—the gamble in gold—would be removed.

After-War Significance of the Plan.—The whole question of monetary standards must come up for discussion soon after the war is over. History will repeat itself in some degree. Europe will almost certainly see a "greenback" party arise as we did after the Civil War, opposed to any return to the old metallic basis, especially as that return will double or quadruple the cost of paying off the war loans. The bimetallist and free-silver exponent also will probably appear once more. In fact, I am credibly informed that some silver interests are now preparing their propaganda and occasionally launching some of it.

There will also be the great international question: Whether or not to restore the old pars of international exchange, all or almost all of which have been severed by the war in one way or another. This being the case, shall we supinely leave our standard of value to drift, the puppet of circumstances, when we can so easily stabilize it? Are we going to let the value of our American dollar and the magnitude of our billions upon billions of dollars' worth of American contracts be the accidental result of unknown and unknowable European policies after the war? Are we forever to be at the mercy of conditions which we can not control? And be it noted that all the above-mentioned problems for Europe will be greatly simplified, if, for once, a really scientific solution of the problem of money standards is reached by one nation.

The world is now looking to us, as never before, for leadership. It is our golden opportunity to set world standards. If we adopt a stable standard of value, it seems certain that other nations, as fast as they can straighten out their affairs, resume specie payments, and secure, again, stable pars of exchange, will follow our example. After gold and silver fell apart in 1873, the nations, one after another, adopted the common standard of gold; and now, after the falling asunder of all the pars of international exchange from this world war, the new order will

probably be set by whatever nation first seizes the opportunity and takes the lead.

There is a further reason why the present is a golden opportunity. This is that we do not now have to consider the objection which existed before the war to one nation alone standardizing the dollar, namely, that it would embarrass our foreign trade by breaking existing pars of exchange. The pars have been broken already—even with England, though she has succeeded in “pegging” exchange at \$4.76 for the present. And most of these pars will probably remain broken for several decades to come, just as ours did, because of the Civil War, for the period of 1861-1878, or as the English did, because of the Napoleonic wars, for the period 1801-1821. It will be a surprise if before the middle of the twentieth century stable pars are again reached. Standardizing our own dollar will therefore not break pars of exchange but, on the contrary, will help foreign nations to make them again. And broken pars of exchange are of relatively slight consequence in any case. The important undertaking is to put our own internal commerce on a stable basis; and our internal commerce is probably a score of times as important as our foreign commerce.

From all standpoints, then, we now have the greatest opportunity of history to set and regulate the monetary standards of the world.

If We Miss the Chance.—If we do not do this, if we do not provide a really scientific remedy, if we take the ground that we must simply drift with the tides of gold and credit, that we are helpless to do anything to rectify or prevent in the future the great social injustices which history warns us will surely come, as between creditor and debtor, wage earner and employer, salaried man and profit-taker, we shall be simply fertilizing the soil of public opinion for a dangerous radicalism. Then surely some demagogue will flourish and offer an ill-considered remedy which will sweep everything before it. We shall then see, not a scientific study of a technical problem with a willingness of all parties to have an equitable settlement, but outraged justice will call forth revengeful effort and we shall witness a great selfish class struggle. Discontent, unrest, suspicion, class hatred, violence, charlatanism will follow, and even if a fairly satisfactory

settlement ever grows out of such unpromising soil there will remain a bitterness embedded in it which will not disappear for generations.

Even if our shifting dollar were guiltless of most of the offenses charged, even if the high cost of living of to-day had no relation to the dollar, there would still be excellent reasons for standardizing it—on the same general principle on which we have standardized all other units. Accordingly, a friend suggests that the plan be presented independently of the "cost of living" discussion, purely as a problem of weights and measures.

But the indictment will stand. The more the evidence in the case is studied the deeper will grow the public conviction that our shifting dollar is responsible for colossal social wrongs and is all the more at fault because these wrongs are usually attributed to other causes. When those who can apply the remedy realize that our dollar is the great pickpocket, robbing first one set of people and then another, to the tune of billions of dollars a year, confounding business calculations and convulsing trade, stirring up discontent, fanning the flames of class hatred, perverting politics, and, all the time, keeping out of sight and unsuspected, action will follow and we shall secure a boon for all future generations, a true standard for contracts, a stabilized dollar.

[The plan as here outlined has received the approval of a large number of economists and business men of influence, including President Hadley, of Yale University; a committee of economists appointed to consider the purchasing power of money in relation to the war (consisting of Royal Meeker, United States Commissioner of Labor Statistics; Professor Wesley Clair Mitchell, of Columbia University; Professor E. W. Kemmerer, of Princeton University; Professor Warren M. Persons, of Colorado College; Professor B. M. Anderson, Jr., of Harvard University and myself); Frank A. Vanderlip, president of the National City Bank of New York; George Foster Peabody, of New York; John Perrin, Federal Reserve Agent of San Francisco; Henry L. Higginson, of Boston; Roger W. Babson, statistician; John Hays Hammond, mining engineer; John V. Farwell, of Chicago; United States Senator Robert L. Owen; the late Senator Newlands; and Sir David Barbour, one of the originators of the Indian gold exchange standard.]

XXI

THE WAR AND INTEREST RATES

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THE NATURE OF INTEREST AND ITS IMPORTANCE

Interest is an all-pervasive element in our economic life. The rate of pure interest is a price which expresses the extent of the market's preference for a given quantity of capital to-day over the present right to the same quantity of capital one year hence. It is an expression for the market rate of time preference, and in the fields of economic consumption and economic production it is as pervasive as time itself. Any economic process that requires time to be carried out, whether it is the utilization of a house by living in it, the cultivation of a field, the operation of a factory, or the maintenance of a railroad, involves also either explicitly or implicitly an interest rate. The present value of such an economic good is largely the capitalization at the market rate of interest of the anticipated values of future uses. Interest, furthermore, is the form in which is received a large part of the incomes of endowed institutions, such as educational, research, charitable, and religious institutions; also of widows, orphans, and others living on funded incomes. It is also the chief form in which are received the incomes of insurance companies and

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banks. The influence of variations in the interest rates upon our economic and social life is therefore enormous.

There is no question but that the great war will have for many years important effects upon interest rates. A consideration of these probable effects and of the proper policy in dealing with them is the subject of this chapter.

THE ELEMENT OF THE MARKET RATE OF INTEREST

Pure Interest.—To simplify the discussion, it will be well first to break up the market rates of interest into their three elements, namely, pure interest, administrative expense, and compensation for risk of loss, commonly known as "insurance." The rate of pure interest is the *agio*, expressed in terms of a percentage of capital sum, which represents the market's preference for capital to-day over an assured right to the same amount of capital with value unimpaired a year from to-day. Pure interest assumes that the lender or investor can receive back on demand the exact sum advanced, together with accrued interest, without depreciation or appreciation, and that its collection will not impose upon him any expenses whatsoever. One would have a close approximation to pure interest in the case of a bond of a strong government having a small debt, if the bond were sold without commission, were payable in one year in terms of a currency whose purchasing power was absolutely stable, and were salable in the market at any time at par and accrued interest. If the rate of interest paid upon such a bond were $4\frac{1}{2}$ per cent, then $4\frac{1}{2}$ per cent would be the rate of pure interest. In the actual market, however, pure interest is never found dissociated from the other elements.

Administrative Expense.—The second of these elements is a charge for administrative expenses. Before making an investment a man needs to investigate the various propositions competing for his funds. Whether he investigates them himself or hires others to do it for him, he incurs an expense. There are also frequently expenses in the liquidation of an interest-bearing obligation either by collection or sale. These must be compensated for by higher market rates of interest. In certain types of loans, such as loans by pawnbrokers and small loans payable on the

installment plan made by Morris plan bankers, the chief element in the market rate of interest is this charge for administrative expenses. One reason why short-time securities often yield higher interest rates than long-time ones of equal safety is that the former impose upon the purchaser the trouble and expense of more frequent reinvestments.

Insurance.—The third element in the market rates of interest, and a very important one, is the factor of insurance against risk of loss. Bonds that pay high rates of interest proverbially involve large risks. The high rates are necessary to tempt the public to purchase securities whose purchase, in the judgment of the market, involves a substantial risk that the interest will not be paid and that the principal may be lost wholly or in part. Other things equal, the higher the market estimates the risk the higher will be the interest rate. The difference in the rate of interest paid by a United States Government bond and that paid by the highly advertised debentures of unreliable mining corporations consists largely of this factor of insurance. This insurance factor is commonly thought of as an extra allowance to compensate for the risk of losing one's interest and principal through the failure of the enterprise by bad management or otherwise to realize adequate profits.

Depreciation or Appreciation in Purchasing Power.—There is, however, another phase of the subject. It is the phase which is frequently discussed under the term "depreciation, appreciation, and interest."² Loans are expressed in money, principal and interest, and money itself in modern times has been very unstable in its value—that is, in its purchasing power over commodities. For the 22-year period from 1873 to 1895 the purchasing power of the gold dollar rose on the average (geometrical) about 2.1 per cent a year, so that the lender received, in addition to his regular interest each year and to the repayment of his principal at maturity, an average annual premium in purchasing power equivalent to 2.1 per cent of interest and principal. Between 1895 and 1913 the purchasing power of the gold dollar, on the other hand, declined on the average about 2 per cent a year. If one lets a house and it depreciates 2 per cent a year, the amount

² Cf. Irving Fisher, "The Rate of Interest," Chapter V.

received for contractual rent includes usually an amount equal to 2 per cent of the value of the property to cover depreciation. If, on the other hand, the property is appreciating 2 per cent a year, one may be willing to rent the house for a sum smaller by that amount than what would be the rent were there no change in the value of the property. The same principle should apply in the making of money loans. When the dollar is depreciating in purchasing power the interest rate should be higher, so as to compensate the creditor for the decline in the value of the unit in which the debt is expressed and paid, as principal and as interest; and vice versa, when the dollar is appreciating in purchasing power the interest rate should be proportionately reduced, so as to compensate the debtor for the more valuable unit in which he is called upon to make his payments. Obviously this item is usually negligible in the cases of demand loans and of loans with very short maturities. Inasmuch as future fluctuations in the value of the dollar cannot be easily foreseen, and as few people realize that they are taking place, deliberate allowances for depreciation and appreciation are not often made in money loans, as they are in the rental of other kinds of property. Unconsciously, however, some allowance is made in both directions, largely through the fact that rising prices stimulate industry, artificially increasing the demand for capital and therefore pushing up interest rates, while falling prices depress industry, lessen the demand for capital, and force down interest rates. These forces, however, normally compensate only a small percentage of the loss or gain resulting from the fluctuation in the purchasing power of the dollar.

The Method of Treatment.—In the light of these facts and elementary principles we may now consider the main topics of this chapter, which may be formulated in four questions:

- (1) What permanent changes are being brought on by the war?
- (2) What adjustments in our life will be necessary to meet these changes?
- (3) What purely temporary conditions are arising?
- (4) How can the difficulties of readjustment after the war be lessened?

PERMANENT CHANGES BEING BROUGHT ON BY THE WAR

The Increasing Use of Bonds of Small Denominations Leads to Lower Rates.—The influence of the war upon interest rates is chiefly an influence upon the size of the rates. As such, it is essentially a temporary one although it may have economic and social consequences of a permanent character. After the period of war readjustment is over, interest rates may be expected gradually to resume their pre-war level. However, there are certain minor effects which the war is having upon the crude or market rates of interest that are likely to be permanent. Two of them relate to the elements of administrative expense and insurance—the non-interest elements in the market rates of interest; and one of them relates to the rate of pure interest. A brief mention of these probable effects will be sufficient.

The administrative expense per \$100 loaned will be influenced by two opposing forces which the war is bringing into prominence. The first force is the war's influence in reducing the denomination of bonds. Liberty loans and war savings stamps, with their accompanying thrift campaigns, are educating the masses of the people to save and to invest their small savings in Government securities of low denominations. In the future the shift from Government securities of small denominations to non-Government securities of small denominations will be an easy one. After the war the man of small income is likely to invest in bonds much more than he did before the war. In this respect Americans will move in the direction of the people of France. Until recently the masses of the people in America have bought few bonds. Indeed, bonds have been the investment luxury of the rich, for comparatively few bonds have been issued in denominations of less than \$1,000. In France all classes of people have been in the habit of buying French rentes, which are issued in denominations as low as 100 francs;³ but the United States public debt for a generation and over or until recently has been held chiefly by banks and by

³"In the French ledger of public debt for 1913, holders of 3 per cent rentes totaled 4,443,904 and of these only 14,231 held allotments in excess of 1,000 francs. Those who held income warrants for 3 francs numbered 107,447; for 5 francs, 250,539; for 20 francs, 395,613; and for 30 francs, 663,747." Pamphlet issued by Guaranty Trust Company of New York on "France and America," 1917, p. 17.

a few wealthy individuals. All this the war is changing. Over nine million people subscribed to the second liberty loan, and nearly twice as many to the third one, and the overwhelming proportion of the subscriptions were for bonds of the denominations of \$50 and \$100. The Government war savings certificate stamps, which, with accumulated interest at maturity in 1923, will be worth \$5.00, and the thrift stamps of 25 cents each—stamps which together are being sold to the small investors in amounts running up to several million dollars daily—represent types of investments that will probably be permanent. The growth of our capital equipment is likely to be materially retarded by our participation in the war; and after the war we may expect railroad, industrial, and public-utility corporations and municipalities to compete for small savings by an ever-increasing resort to the issue of bonds of small denominations. These “baby bonds” have therefore come to stay. Even before the war the movement in their favor was slowly gaining momentum. What influence, if any, will their increasing use have upon interest rates?

The administrative expense of marketing a \$100 bond and paying the interest is almost as large as that of handling a bond of ten or one hundred times that denomination. But this administrative expense is of a type quite the opposite of those previously mentioned. It is an expense not to the lender but to the borrower. Upon which party it will ultimately fall will depend upon the relative strength of lender and of borrower in the investment market. The purchaser of \$100 and \$50 bonds, however, is the man of small means, and there is a strong presumption that in a large proportion of the cases the extra expense will be shifted to him in the form of a lower interest rate. Even before the war “baby bonds” usually sold on the basis of a smaller interest yield than the bonds of larger denominations. The movement therefore from large-denomination bonds to small-denomination bonds will probably have a slight tendency to reduce interest rates.

The Large Proportion of Government Bonds.—Offsetting this tendency, however, either partially or wholly, is another influence. That influence is the rapidly increasing proportion of Government securities among the investment securities on the

market. Since the United States entered the war its public debt has increased manifold, and it will probably continue to increase rapidly until peace is attained. The flotation of new public government securities has been restricted, and even when such flotations begin again after the war it will be a long time before the proportion of Government securities in the market will sink to anything like the low figure it represented before the war. Government securities are put out in large issues, and their administration is handled by Government officers and Federal reserve banks, with a minimum of expense. The deduction for administrative expenses from what would otherwise be the market rate of interest paid on Government loans is therefore likely to be a very small one. The increasing relative importance of Government securities in the market will accordingly tend to lessen the deduction for administrative expenses in the average market rate of interest and will therefore tend to push the rate up slightly. Whether or not on the average it will offset the extra expense to the borrower arising from the shift to bonds of smaller denomination it is impossible to say. At most, both influences are very small ones.

Increased Safety.—The second effect concerns the element of insurance. While Government bonds are not always safer investments than non-Government bonds, and while they will probably not stand in the matter of safety so much higher than the best railroad and industrial securities as they did before the war, it is a reasonable guess that United States Government bonds during the next generation will represent a higher standard of safety than the average of railroad, public-utility, industrial, and municipal securities competing with them in the market. Since Government bonds will represent a larger proportion of the total than ever before, the average safety of investment bonds bidding for the public's savings in America will probably be raised rather than lowered by the war. This is true despite the fact that the war is dealing heavy blows to the earnings and the credit of many so-called non-essential industries. The Government's taking over of the railroads is placing their securities upon a firmer basis. Many non-essential industries are adapting themselves to the manufacture of products that are essential to the war, and

the force of the war's blow to many other industries will be weakened by the operations of the War Finance Corporation.

The increasing importance of the small investor in the security market, brought about by appeals to patriotism and by the average man's innate desire to do his bit in a great cause, will mean that the Government will be compelled to take a greater interest in the protection of the small investor than ever before. The old idea, expressed in the vicious doctrine of *caveat emptor* in connection with the investment market, will find much less favor in the future than it has in the past. The public will cease to tolerate carefully planned campaigns of deception in the guise of circulars, news items, and other advertisements which are technically true but which in their effect are essentially false and misleading—advertisements of a type which a number of so-called investment houses have heretofore issued to the public with impunity to attract small savings, excusing themselves on the ground that the man who speculates or who buys without knowing what he is buying must expect to lose and has no one to blame but himself. The investments of the man of small means and consequently the advertisements luring him to invest will be looked upon as affected with a much greater public interest in the future than in the past, and this will be a wholesome permanent result of the war's discovery of the small investor in America. It will be a result that will tend to lessen market rates of interest through reducing the importance of the insurance factor.

All in all, it seems probable, therefore, that the insurance element in the interest paid on investment bonds will be reduced rather than raised by the war.

The Habit of Thrift.—There is likely to be one other permanent or at least long-time effect of the war on interest rates—an effect on the element of pure interest in the market rates. Frequent and extensive educational campaigns conducted during the period of the war to induce the public to practice rigorous economies in consumption and to invest all possible savings in the public debt will probably have a permanent influence in creating habits of thrift among the American people. Americans in the past have been proverbially wasteful and extravagant, just as the French have been proverbially economical and frugal. Edu-

cation in thrift secured and habits of saving and investment formed under the stress of war will survive the war, and their influence is likely to be felt for many generations. This means a rate of capital accumulation greater than that before the war, and consequently an influence in the direction of lower interest rates.

Summary.—The permanent effects of the war upon interest rates, we may conclude, are likely on the whole to be in the direction of reduced rates and therefore to be beneficial to the public. We may now turn from the permanent effects to the more temporary ones.

WHAT PURELY TEMPORARY RESULTS WILL THE WAR BRING ABOUT?

The Rise in the Rate of Interest.—It is in the field of temporary results that the war's effect upon interest rates will be greatest, and these temporary effects are likely to have consequences of far-reaching importance in our economic and social life.

The big fact to note is that the rates of interest on all kinds of obligations are being raised by the war. This applies to long-time loans and to short-time and demand loans. It applies to Government debt and to corporation and private debt. It applies to interest expressed in terms of money and to interest expressed in terms of purchasing power over commodities. It applies to pure interest and to market interest. These statements can all be substantiated by statistical evidence, but the limits of this chapter will prevent us from doing more in the direction of substantiating them than to give a few samples of the type of evidence available.

First let us consider the evidence as to money rates of interest on long-time obligations, and then on short-time paper.

Higher Yield of Long-term Bonds.—The Government's first liberty loan was floated at $3\frac{1}{2}$ per cent, but despite its complete tax-exemption privileges it has since sold as low as 3 per cent below par. The second loan was floated at 4 per cent, and the third at $4\frac{1}{4}$ per cent. The bonds of each loan went to a discount in the market shortly after their issue, despite the appeals to the patriotism of the holders not to sell their bonds and

despite the fact that the overwhelming majority of purchasers of bonds felt it to be their patriotic duty not only to buy the bonds but to hold them.

The *Annalist* has been publishing weekly since July, 1915, a chart showing the weekly fluctuations in the average price of 40 listed bonds. Taking the average quotations for the first weeks of the months by half-year periods, we arrive at the following results:

	1915	1916	1917	1918 (4 months)
First half year.....	.....	\$86.75	\$86.21	\$76.56
Second half year.....	\$83.83	87.58	80.40	.....
Year .....	.....	87.17	83.33	.....

West Shore Railroad fours of 2361, which have been used by Professor Wesley C. Mitchell ⁴ and others as a good representative of high-class investment bonds, gave the following net interest yields at average prices for the periods given below:

	Per cent		Per cent
1912.....	4.02	1917.....	4.71
1913.....	4.21	1917 (quarterly):	
1914.....	4.32	First	4.38
1915.....	4.43	Second	4.62
1916.....	4.38	Third	4.88
1916 (quarterly):		Fourth	4.96
First	4.35	1918 (first quarter)	5.11
Second	4.39		
Third	4.44		
Fourth	4.35		

The average price of twenty leading investment bonds as given in Babson's "Reports on Fundamental Conditions" declined from 93.4 for the year 1913 to 87.3 for the year 1917, and it declined from 91.0 for July, 1914, to 79.8 for March, 1918.

Taking these twenty bonds individually and also collectively and comparing their net yields at the prices quoted on or about

⁴ See W. C. Mitchell, "Business Cycles," p. 165 et seq.; also "Rates of Interest and the Prices of Investment Securities, 1890-1909," in *Jour. Pol. Econ.*, vol. 19, pp. 273-285. The figures here given for the years 1912-1915 were computed by Mitchell, those for 1916 were computed by David A. Friday, and those for 1917 and 1918 were computed by the writer.

THE WAR AND INTEREST RATES

401

March 1 of each year from 1914 to 1918, we arrive at the results given in the following table:

NET YIELD OF TWENTY REPRESENTATIVE RAILROAD BONDS AS OF A DATE ABOUT MARCH 1, 1914-1918

Highest-Grade Bonds	1914	1915	1916	1917	1918
(1) A., T. & St. F. gen. 4s of 1995.....	5.65	4.40	4.30	4.35	4.85
(2) B. & O. gen. 4s of 1948.....	4.30	4.75	4.50	4.45	5.60
(3) C., B. & Q. gen. 4s of 1958.....	4.35	4.55	4.35	4.30	5.00
(4) L. & N. un. 4s of 1940.....	4.35	4.55	4.35	4.35	5.10
(5) N. Y. Cen. 3½s of 1997.....	4.30	4.40	4.35	4.30	4.90
(6) N. & W. 1st 4s of 1996.....	4.25	4.35	4.35	4.20	4.85
(7) N. P. pr. l. 4s of 1997.....	4.20	4.50	4.35	4.35	4.95
(8) Penn. gt. 1st g. 4½s of 1921.....	4.35	4.50	4.15	4.10	5.70
(9) S. P. 1st ref. g. 4s of 1949.....	4.40	5.10	4.90	5.15	5.20
(10) U. P. 1st 4s of 1947.....	4.20	4.40	4.15	4.05	4.80
Average of 10 bonds.....	4.45	4.55	4.40	4.35	5.10
Second-Grade Bonds					
(1) A., T. & St. F. adj. 4s of 1995.....	4.60	4.85	4.65	4.75	5.15
(2) C. & O. gen. 4½s of 1992.....	4.75	5.00	4.40	5.20	6.05
(3) C., R. I. & P. gen. 4s of 1988.....	4.55	4.90	4.80	4.70	5.25
(4) C. & S. ref. 4½s of 1935.....	5.15	5.95	5.85	6.00	7.70
(5) D. & R. G. 1st con. 4s of 1936.....	5.30	6.05	5.90	5.60	7.50
(6) Erie con. m. p. l. 4s of 1996.....	4.65	5.00	4.75	4.90	6.00
(7) K. C. S. ref. 5s of 1950.....	5.10	5.80	5.55	5.80	7.05
(8) St. L., I. M. & S. gen. 5s of 1931....	4.75	5.05	4.85	4.80	5.55
(9) S. Ry. 1st con. 5s of 1994.....	4.75	5.05	4.90	4.90	5.40
(10) Va. Ry. 1st 5s of 1962.....	5.00	5.20	5.10	5.10	5.60
Average of 10 bonds.....	4.85	5.30	5.10	5.20	6.15
Average of all 20 bonds.....	4.65	4.90	4.70	4.75	5.60

All of the above evidence points to a substantial advance in interest rates since the period just preceding the outbreak of the European war. The greater part of this advance, however, it will be noted, has occurred since January, 1917. For the year 1917 and the year 1918 to date (April 13) the advance in the interest yield has been a continuous one. Average figures for the year 1914 as a whole are of little value, because of the strained and uncertain market which prevailed during the early months of the war—a time when the New York Stock Exchange was closed and the number of bond transactions was small. During the first half

of 1915 the general trend of long-time interest rates was upward, and during the second half it was downward. Babson's twenty bonds show a slightly increased average interest yield for 1915 over the first half of 1914; and our comparisons of the yields of these bonds as of March 1, 1914, and March 1, 1915, show an average increase from 4.65 per cent on the former date to 4.90 per cent on the latter. For 1916 there was little change in the interest yield. The average price of Babson's twenty bonds was almost identically the same for December, 1916, as for January, 1916, while the average yield of West Shore 4s was the same for the last quarter of 1916 as for the first quarter, although the second and third quarters had shown small advances.

Explanation of Stable Rates During 1915 and 1916.—The comparative stability of the interest yield on long-time securities during 1915 and 1916 was surprising to many and led some economists and bankers to take the position that the war would not cause an advance in interest rates. This optimistic delusion, however, was soon removed. The chief explanation of the failure of interest rates to advance sooner is to be found in the currency and banking situation. The first years of the war witnessed the inauguration and rapid development of the Federal reserve system in the United States, whereby bank reserve requirements were greatly reduced, and reserve money was made much more efficient.⁵ During the period under consideration, moreover, the Allies were making heavy demands upon us for war supplies and were sending us in return large quantities of securities and gold. It took time for us to absorb in the form of bank-credit expansion, even under the pressure of Europe's heavy demands for supplies, this large influx of gold, and at the same time to "take up the slack" in our bank credit caused by the greatly improved efficiency of our banking system under the Federal reserve law.⁶ The result was that a redundancy of money, which was being absorbed in expanding bank credit and rising prices, temporarily held down interest rates and gave a false appearance of a plenteousness of capital. In other words, the real situation was being disguised by a camouflage of inflation.

⁵ For a discussion of this subject with statistical evidence, see E. W. Kemmerer, "Inflation," in *American Economic Review*, June, 1918.

⁶ For a fuller discussion of this subject see E. W. Kemmerer, *op. cit.*

There was, however, during these years, along with a great increase in the demand for American products, a large increase in the supply of American capital—an increase made possible by our heavy export trade in war supplies at war prices. Professor David Friday estimates the capital increases of the country during the four years 1913, 1915, 1916, and 1917 as follows, in billions of dollars:

1913.....	\$4.5	1916.....	\$12.6
1915.....	7.5	1917.....	16.8

Inasmuch, however, as this increased supply of capital in America was contemporaneous with a greatly increased demand, and was to a considerable extent at the expense of Europe, whose capital was being destroyed at an unprecedented rate, one cannot find in it a sufficient explanation for the failure of market rates of interest on long-time securities to advance in 1915 and 1916. As previously stated, the chief cause was currency and credit inflation.

We shall see later that the real increase in the net yield will probably be much larger than the figures so far given, taken by themselves, show; but even this increase is a matter of far-reaching importance. An advance from an average rate of 4.65 to one of 5.60 is an advance of 20 per cent. An assured perpetual income of \$465 a year, when the market rate of interest is 4.65 per cent, has a "present worth" of \$10,000, while the same income when the market rate of interest is 5.60 has a "present worth" of only \$8,304. An advance in the rate of interest as great as this obviously has a tremendous influence upon the tens of billions of long-time securities held in the United States.⁷

Higher Return of Short-time Loans.—Before considering the important factor of depreciation and appreciation in connection with these changes in the long-time interest rates, let us take a glance at a sample of the evidence as to the recent changes in the market rates of interest on obligations running for shorter periods. Short-time loans have an advantage to the lender over long-time

⁷ Shortly before the war the economist Alfred Neymarck estimated the total securities then in the world's market at 175 to 200 billion dollars. The volume of securities is of course much greater now as the result of the large increase in Government indebtedness resulting from the war.

404 AMERICAN PROBLEMS OF RECONSTRUCTION

loans in that they give him a larger control of his capital, and this is an advantage of real importance in times like the present, when interest rates are rising and when the uncertainties of the future are so serious. Short-time loans, moreover, as previously pointed out, eliminate largely the item of probable depreciation or appreciation in the value of the monetary unit during the period of the loan contract. As representatives of short-time loans, we may take sixty to ninety day two-name prime commercial paper and six-month time loans. The average rates of interest on these two types of paper by quarterly periods from January 1, 1914, to April 1, 1918, are given in the following table:

INTEREST RATES IN NEW YORK CITY, BY QUARTERLY PERIODS, 1914 TO 1918^a

	60 to 90 Day Two-Name Prime Commercial Paper	Six-Month Time Loans
1914		
First quarter.....	4.19	4.05
Second quarter.....	3.81	3.17
Third quarter.....	5.78	6.03
Fourth quarter.....	5.45	5.16
Year	4.84	4.59
1915		
First quarter.....	3.66	3.35
Second quarter.....	3.68	3.23
Third quarter.....	3.36	3.23
Fourth quarter.....	3.11	2.98
Year	3.44	3.19
1916		
First quarter.....	3.12	3.01
Second quarter.....	3.28	3.38
Third quarter.....	3.70	3.82
Fourth quarter.....	3.58	3.70
Year	3.42	3.47
1917		
First quarter.....	3.89	3.73
Second quarter.....	4.73	4.62
Third quarter.....	4.91	5.04
Fourth quarter.....	5.44	5.68
Year	4.75	4.77
1918		
First quarter.....	5.70	5.88

^a All rates are the average of the mean weekly rates for the weeks ending Friday. They have been compiled from the *Financial Review* of 1917 and the *Commercial and Financial Chronicle*, 1917 and 1918.

The table seems to justify the following generalizations. Although during the early months of the war the interest rates for both kinds of paper stood at much higher levels than previously, they receded to approximately the pre-war level by the first quarter of 1915. They showed a downward tendency throughout 1915 and during the first half of 1916, but since the first quarter of 1916 (except for a small reaction in the fourth quarter of that year) the rates on both classes of paper have moved continually and substantially upward. For commercial paper the average rate rose from 3.12 per cent in the first quarter of 1916 to 5.70 per cent in the first quarter of 1918, representing an increase of 80.3 per cent, while for the same period the average rate for six-month time loans increased from 3.01 to 5.88 per cent, representing an increase of 90.5 per cent. Since the United States entered the war every quarter has shown an increase in the average rate for each class of paper. The failure of short-time interest rates to advance earlier was due largely to the causes just discussed in connection with long-time rates. During periods of such great uncertainty as to the future short-time rates are likely to lag behind long-time rates on an advance because of the desire of capitalists to keep control of their funds "until they see what is going to happen."

CHANGES IN THE PURCHASING POWER OF THE DOLLAR

An important factor in the interest rate is the one previously discussed, namely, prospective changes in the value of the monetary unit in which the interest-bearing contract is expressed, during the period covered by the contract. In the ordinary rental contract, it was noted, prospective depreciation and appreciation are deliberately allowed for, but not so, usually, in purely money contracts. A man who lends \$1,000 for a period of five years at 6 per cent per annum is renting 1,000 units of money for five years at \$60 a year. It is true that the principal he receives back at the end of five years does not consist of identically the same dollars that he lent, but it consists of the same number of dollars. In the meantime, of course, he has turned the dollars into goods and has had the use of the goods. The lender allows in the interest rate for his estimated risk of losing the principal, but he rarely asks himself if the \$1,000 he is to receive back at

406 AMERICAN PROBLEMS OF RECONSTRUCTION

the end of the five years and the \$60 interest he is to receive each year will be as good dollars as the ones he lent. The goodness of the dollars to him of course depends upon the quantity of goods they will buy. How often does the lender ask himself what will be the probable depreciation or appreciation in the purchasing power of the dollar by the time he gets his dollars back?

Let us apply this principle to the situation in the United States since the beginning of the European war. These four years, or, more correctly, the last two of them, have witnessed a tremendous rise in prices in the United States. The United States Bureau of Labor Statistics' index numbers of wholesale prices covering nearly three hundred commodities show an increase of 75 per cent from 1913 to 1917, the average annual figures being as follows:

1913	.....100
1914	..... 99
1915	.....100
1916	.....123
1917	.....175

These figures show a decline in the purchasing power of the dollar in four years of 43 per cent. In other words, if the dollar of 1913 (or that of 1915) is considered as a 100 per cent dollar, then the dollar of 1917 is a 57 per cent dollar. Apportioning the decline in purchasing power over the four-year period, we find an average annual depreciation of 11 per cent, computed arithmetically, and of 13 per cent, computed geometrically. These rates of depreciation are obviously about twice as large if we apportion the depreciation only over the two years 1916 and 1917. For the eighteen-year period 1895 to 1913 there was an average annual depreciation of 1.7 per cent, computed arithmetically, and of 2 per cent, computed geometrically. If we assume that had the war not taken place the same annual rate of depreciation in the dollar would have occurred as occurred for the average year 1895 to 1913, we arrive at an average annual depreciation of the dollar due to the war of 9.3 per cent, computed arithmetically, and 11 per cent, computed geometrically. The latter figure is the more scientific one. It is this depreciated dollar that we are paying to the Government in the purchase of liberty bonds, and it is this dollar that the Government has been using to buy war supplies at high and rising war prices. How long the dollar will

continue to depreciate under war influences no one knows, for no one knows how long the war will last, nor what measures our Government will take to control inflation and otherwise to fix prices.⁹

Causes of the Declining Purchasing Power of Money.—The evidence points strongly to the fact that the rise in prices from 1895 to 1913 was due primarily to the world's large and increasing gold production¹⁰ and secondarily to the increasing efficiency of our credit mechanism, and that since August, 1914, the rise has been due principally to paper-money and deposit-currency inflation—chiefly paper-money inflation in continental Europe and deposit-currency inflation in the United States and England. Inflation in any one country, it should be observed, tends to cause inflation in all other countries with which the first country is carrying on active trade. Heavy issues of paper money, for example, in one country tend to drive gold out of that country, under the principle of Gresham's law, and the receipt of this gold into the bank reserves and active circulation of other countries in turn tends to cause inflation in them. In this connection it is significant that the net importations of gold into the United States from August 1, 1914, to March 15, 1918, have been over a billion dollars—a sum equal to nearly two-thirds of the total gold circulation of the United States when the European war broke out. From 1913 to 1917 the physical volume of business done in the United States (measured by bulk and not by value) is estimated to have increased 21 per cent, the currency circulation increased 45 per cent, gold in circulation increased 76 per cent, bank deposits in commercial banks 68 per cent, and bank clearings 81 per cent. During the same period the average cash reserve against deposits in commercial banks fell from 11.7 to 10.6 per cent.¹¹

⁹ There has been little advance in prices since the summer of 1917. Whether this is merely a temporary cessation of the upward movement of prices or a permanent one, time only can tell. The evidence afforded by the statistics of currency and credit inflation makes it appear that further advances are probable.

¹⁰ See, on this subject, E. W. Kemmerer, "Why It Costs You More to Live," in "How to Invest When Prices are Rising," G. Lynn Sumner & Co., Scranton, Pa., 1912.

¹¹ Detailed figures concerning inflation will be found in the writer's article on "Inflation," previously cited, in the *American Economic Review*, June, 1918.

Influences Governing Interest Rates After the War. When the war is over and our currency and credit supply is forced back to more normal proportions, as it probably will be, by a slow contraction of paper money and of deposit currency, and by the "growing up of business" to meet the steadily declining supply of currency and credit, prices will probably move back toward their pre-war level, as they did after the Civil War.¹¹ Inasmuch as prices were rising before the European war broke out, and as the contraction of the supply of currency and circulating credit is likely to meet strong opposition on the part of the debtor classes, of many business interests, and of certain other interests, the after-war recession of prices is likely to be both tardy and incomplete. When it will begin and how far it will go it would be rash to attempt to say. I believe, however, in the light of monetary theory and of our own Civil War experience, that it is reasonable to expect a considerable recession of prices within a few years after peace is declared. Of course there is a possibility that some action may be taken within a few years in the direction of stabilizing the value of the dollar, and this would fix the price level at the place where it stood at the time the plan was put into operation. The bonds of the first liberty loan mature in 1947, those of the second in 1942, and those of the third in 1928. It seems probable, therefore, that the interest on all these bonds will be paid during a number of years in a more valuable dollar than that loaned to the Government, and that the dollar will have a larger purchasing power at the time of the maturity of the bonds than it now has in these times of highly inflated currency and circulating credit, when the bonds are being floated. In other words, there is a strong prospect that the bondholder will receive a purchasing-power interest substantially larger than the money rate of interest called for by the bonds that are being floated during the period of the war. This applies to both Government bonds and corporation bonds.

Whether or not, however, the purchasing power of the dollar will rise a few years after the war is over, thereby adding to the (money) rate of interest a substantial *agio in purchasing-power interest*, it is clear that the interest rate has already risen since

¹¹ For a discussion of our experience in this regard after the Civil War see Wesley C. Mitchell, "The Greenback Standard," *chart and facing page 260*.

1916, and there is a strong prospect that the forces which have made the rate of pure interest rise during the last two years are forces that will continue in operation at least for some time after peace is in sight. Those forces are, first, the tremendous demand for immediate war equipment, and, second, the great depletion of the man force available for the production of this equipment. The war's demands are peremptory, and the meeting of them promptly is imperative. To that end, from the economic point of view, the present is the all-important time. The future is of secondary importance. For the preservation of democracy no economic sacrifice is too great, in the form either of the enjoyable goods of this generation or of the capital equipment we are to pass on to the next generation. But the war for democracy must be won or lost during a very brief period, and that critical period is now. This means an overwhelming emphasis upon present goods as contrasted with future goods—present goods that are conducive to the winning of the war. It means an unprecedented demand for goods of particular kinds. It means also that those goods must be produced under very heavy handicaps. Millions of our most efficient men are taken to the front, and our labor supply is curtailed. Business is disorganized by a reduced and changing labor force and by a shifting of the country's economic demands. War is a time of haste, and war does not annul the old maxim that "haste makes waste." The non-essential industries must be curtailed and many of them discontinued altogether in order to release labor and capital for essential industries. The building of new capital equipment, except that demanded for war needs, must be practically suspended. Even the maintenance of much existing equipment not needed for war purposes must, to a substantial extent, be sacrificed. The serious business at hand demands that we concern ourselves almost exclusively with the present, namely, with the winning of the war, and that for the time being we devote little of our limited energies to economic production for the after-war future. When the war is won there will be time for that. To-day's task is the military present; to-morrow's will be the economic future. All this means a big premium upon present goods in terms of future goods, a large and increasing demand for capital in the face of a probably declining supply. This is the stuff out of which high interest rates are made.

As soon as the Allies win the war, the insurance element in the market rate of interest in Allied countries will decline, but the depleted capital equipment and the urgency of the need for economic reconstruction, both at home and abroad, are likely to prevent any decline in the pure rate of interest for some years after the war. The market rates of interest, therefore, will presumably maintain themselves at high levels for some years.

RESULTS OF ADVANCES IN RATES OF INTEREST

These higher rates of interest will have economic and social results of a far-reaching character. A few of the more important of them may be briefly mentioned. (1) Higher interest rates are imposing a serious though temporary burden upon savings banks and other institutions, the present value of many of whose assets, notably bonds of long maturities, is dwindling, while the liabilities either remain unaffected or are reduced less than proportionately. Higher market rates of interest are in danger of attracting depositors away from these banks at just the time that depreciating assets are making it the more difficult for them to meet their obligations. Of course as the bonds mature and are paid off or renewed at higher rates of interest the difficulty is solved. There is, none the less, for many such institutions a trying period of transition. (2) Higher rates of interest in themselves benefit institutions and persons living on fixed incomes when their investments are made after the interest rates have risen. This advantage, however, is largely if not entirely offset in cases like the present, where a rise in the interest rates is accompanied by a great rise in prices. An institution, for example, which converts a million dollars' worth of maturing 4 per cent bonds into a million dollars' worth of 5 per cent bonds gains nothing if the prices of the things it buys rise at the same time 25 per cent. If prices, however, subsequently decline before the bonds mature, there is obviously a net gain. (3) Closely related to the two points just mentioned—in fact, merely another phase of the same general subject—is the third point. Advancing rates of interest tend to lessen the market value of real estate and of other physical goods of a highly durable character. A piece of agricultural land, for example, that yields a net income,

above all expenses of operation and maintenance, of \$5,000 a year and gives every prospect of continuing to do so for the indefinite future may be worth \$100,000 when the interest rate is 5 per cent but will probably decline to a value in the neighborhood of \$83,333 if the rate of interest rises to 6 per cent. In case the advance in the rate were looked upon as a temporary one, the decline would of course not be so great. Such an advance in the rate of interest from 5 per cent to 6 per cent would mean that the owner of such a farm in borrowing money against a mortgage upon his property would be compelled to pay a higher rate of interest and at the same time would suffer a reduction in the amount he would be able to borrow, since his collateral would be less valuable. (4) The higher rates of interest become increased items of expense in the production of goods, since expenses for interest are items of cost, either explicit or implicit, in the production of goods. (5) Many kinds of capital equipment are unprofitable to use when interest rates are high that would be profitable to use were interest rates low. There is accordingly a shift from the use of highly durable and expensive machinery and plant to the less durable and cheaper type. When the interest rates are high it becomes unprofitable to tie up present resources in highly durable goods, many of whose usufructs will not be obtained for years to come. Present resources are too valuable to be locked up for a distant and prospectively richer future. (6) A higher rate of interest is not only a sign of scarcity of capital, but it is also an increased reward for its accumulation. It encourages the saving which is the means to the replenishment of society's depleted capital.

These are only a few of the more important results of a rise in the rate of interest. They are obviously not distinct but closely interrelated. In some respects the results are good; in others they are bad. On the whole, however, it will probably be agreed that a country prospers more with a plenitude of capital and with low rates of interest than with a scarcity of capital and high rates of interest.

WHAT SHOULD BE OUR NATIONAL POLICY?

What, if anything, can be done to retard the upward movement of interest rates and to lessen the evils which that movement

threatens to cause? An attempt briefly to answer this question will constitute the last section of this chapter.

Broadly speaking, our national policy as regards the problem presented by a rising interest rate should be to retard its advance, in so far as that can be done consistently with the most effective prosecution of the war, and to prevent the necessary burdens it creates from bearing too heavily upon the institutions and persons who are least able to bear them. Let us consider these two proposals separately.

What can be done to retard advancing interest rates? The answer is, make the most efficient use possible of existing equipment, so that our equipment after the war is over will be depleted no more than is necessary below what it would have been had the war not taken place. Among the methods of doing this the following may be suggested: (1) Bring pressure upon the public to cut down drastically the consumption of luxuries and other non-essentials, so as to cause the maximum production of war supplies and thereby to shorten the war. It is better in a period of national emergency to sacrifice articles of consumption than instruments of production, although the cutting down of consumption necessarily reacts upon the value of the machinery of production of the articles whose consumption is curtailed. Much of the labor released, however, can be utilized for the production of essentials, and a considerable part of the equipment may often be adapted to war purposes. The curtailment of the consumption of non-essentials may be brought about by vigorous campaigns of education, by restriction upon the granting of bank credit to non-essential industries, by restrictions on loan flotations for such industries, and by priority regulations in matters of transportation, the supplying of fuel, and the like. (2) Utilize existing plants and machinery so far as possible for the manufacture of war supplies. In other words, wherever practicable and to the extent practicable, adapt the plants of non-essential industries to the production of war essentials instead of creating entirely new establishments.¹⁸ (3) In the construction of plants,

¹⁸ Mr. H. Gordon Selfridge, of London, in an article prepared for the use of the National War Savings Committee at Washington says that the drastic curtailment of certain lines of production in England to make way for war business has "merely resulted in a shifting of labor

machines, etc., for war purposes, have an idea to their adaptation after the war to the production of goods needed in time of peace. This means the utilization of standardized machinery, interchangeable parts, and the like. We should avoid as far as possible the necessity of scrapping after the war the expensive equipment we are now building up for the production of war supplies. When peace is attained not only the soldiers but the munition factories should be transferred with the minimum of expense and disturbance to the pursuits of peace. (4) During the period of the war and for some time afterward we should avoid the building of costly structures whose usufructs will come in the distant future. The immediate need for extensive reconstruction will be too urgent to justify the projecting of our labor and material resources into uses so far distant in time. For a few years after the war our economics must be that of a comparatively new country. (5) We should avoid the wastes of undue competition and make our capital more effective by greater centralization under Government supervision and control. A better organization of capital will go far to offset the losses due to a relatively smaller capital supply.

To prevent the burden of higher interest rates from bearing too heavily upon those least able to bear it will require positive action by the Government. The burden is one imposed by a program undertaken for the public good, and it should be distributed widely rather than placed upon the shoulders of a few. To this end much should be accomplished by the newly established War Finance Corporation, one of whose duties is to help finance worthy institutions and concerns during the trying period of readjustment brought on by the war.

Economies in consumption, however, let us repeat in conclusion, are as important as economies in production. For some

and business activity from the less essential to the vitally essential industries. To give a few illustrations: Phonograph factories are now turning out delicate shell parts, jewelry makers are producing periscopes, watchmakers are adjusting fuses, music-roll makers have turned to gage making, a baking-machinery plant is manufacturing high-explosive shells, a cream-separator factory is making shell primers, glaziers are making cartridge clips, a baby-food factory is producing plugs for shells, [and] the output of a textile machinery plant is now field kitchens." Quoted in *Commercial and Financial Chronicle*, March 30, 1918, p. 1296.

years to come it is urgent that the people restrict rigorously their consumption of luxuries, hold down their standards of living, and *save*. Savings are the raw material out of which capital is built, and interest rates will not fall far until capital becomes plentiful.

XXII

NATIONAL THRIFT

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Larger Aspects of Thrift.—The relation of thrift to after-the-war reconstruction is evidently intimate and essential. In the larger meaning of the word, thrift includes practically all the elements of constructive social development. It includes saving not only in the simple sense of avoiding unnecessary consumption but in that of conserving and utilizing in the best manner. In this meaning, thrift applies to the effective, advantageous employment of labor as well as to watchful attention over the family expenditures. There is good reason to believe that if in every department of production the efficiency of all labor were raised to the standard of the best present practice, the industrial output of this country would be doubled. Experienced industrial managers of wide observation go so far as to say that it would be quadrupled, but if it should be increased 25 per cent, or even 10 per cent, by simply doing our work by better methods, all the cost of the war would be soon made up. If, therefore, the war compels us or induces us to make a study of the application of labor to our resources by the most effective means and of its conservation by applying it to those branches of industry in

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which it will be of greatest service to the community, the result will be to set society in wealth, comfort, and productive powers far ahead of what it was before. We would not choose to have war as a means of social advancement, and war accomplishes nothing which might not be accomplished under peaceful conditions, but it lifts society out of the routine; and, if we are quick to see the lessons it teaches, changes may be made more rapidly than in normal times.

We do not ordinarily apply the word "thrift" to business policies, but rather confine it to personal habits; but it will emphasize the importance of thrift and dignify the habits and means by which it is practiced to show the larger results that come from it and the relation between such personal habits and the welfare and progress of the whole social body.

Its Social Significance.—The beginnings of social progress are in thrift. There must be something saved from immediate consumption and applied to improving the means of production. Labor is withheld from work where it would produce direct results and applied instead to making a wagon, a plow, or a ship, which will promote industry or trade in the future. Each new achievement of this kind becomes the basis for further advancement, rendering it possible to devote more time and labor to the improvement of individual skill or of methods. But to maintain this forward movement there must be a constant exercise of the intelligence and a resolution to deny and to do without, to-day, for the sake of having more to-morrow. It is necessary to save seed out of this year's crop in order to have next year's crop. Men save not merely to accumulate the savings but to be able to carry out their plans for wealth creation by constructive efforts, and as they succeed in so doing they carry the whole community forward, besides benefiting themselves.

It is this idea of the community value of savings and of the constructive work which can be done with savings which makes the most stirring appeal for thrift. The picture of a miser who by painful self-denial gathers a chestful of coin, which he learns to love for what it has cost him, does not inspire any one to emulate the example. That idea of thrift identifies it with meanness, and unfortunately it is a common idea. The appeal for savings must be enforced and dignified by the purpose to be

served. Parents save cheerfully and resolutely to educate their children, and now we see millions of people saving for the purpose of lending to the Government and supporting it in the great world struggle which involves fundamental principles of right in the intercourse of nations. At this time all the arguments for thrift may be driven home with redoubled emphasis. Everybody can understand them. In the first place, at a time when the Nation needs every ounce of man power to recruit and equip its armies and supply its own people and its allies with the common necessities, it is wicked to occupy labor in providing mere luxuries which can be done without; and in the second place there is an obligation upon each of us to do all that his circumstances will permit in supplying the Treasury with money. The two obligations are the complements of each other; by observing the first we find the means of responding to the second. In view of the ominous emergency which confronts us, we can see where our duty lies, and if we are lukewarm or negligent, public sentiment is concentrated irresistibly upon us. When the war is over, although the situation will be less dramatic and critical, the arguments and obligations will be the same.

Thrift and Reconstruction Needs.—The need then will not be for money to buy munitions and war equipment but to rehabilitate the regions devastated, to improve and reconstruct the machinery of production everywhere, and to make good the waste, the losses, and the arrested development which the whole world has suffered. It is frequently said that society will not be the same after the war as before, and usually with the implication that the masses of the people will insist upon conditions more satisfactory to them and less favorable to those who possess wealth than have existed heretofore. It is surely much to be desired that conditions shall be always improving for the masses, and real improvement cannot take place too rapidly, provided, however, that it must take place in accordance with the natural laws of development. This means that it can take place only as the processes of industry are improved so that a greater supply of the necessities and comforts of life is produced. It is impossible to divide any more than all there is, and impossible to make any considerable improvement in the condition of the millions by mere changes in the division or distribution of the present vol-

418 AMERICAN PROBLEMS OF RECONSTRUCTION

ume of production. The processes are subject to endless improvement, but that means the destruction or abandonment of great amounts of wealth now existing in the form of equipment and the substitution of new equipment therefor.

Capital is always wanted to finance the new ideas that are awaiting development. Machinery which will give to each worker the capacity which two workers now have will realize the hopes for a reorganized society. To accomplish this, thrift is necessary; labor must be devoted to construction work, and while so engaged it must be supported by the savings of the community, precisely as the labor now called to the armies and engaged in producing war materials must be supported by the savings of the rest of the community. As we eagerly and devotedly save for the latter purpose, so should we save to increase the capital fund which is required to raise the level of living conditions.

The Standard of Living.—A discussion of savings is necessarily related to the question of living expenses, and that is a subject upon which people are naturally sensitive. It is not agreeable to people already struggling to make ends meet to be told, particularly by persons whom they suspect of having more than themselves, that they spend too freely and ought to economize and become forehanded. The defense offered in perfect good faith has always been that the cost of living was so high that saving was impossible, but the fact is that at all times and among all classes some people have saved and others have not. Living expenditures are determined to a great extent by more or less definite standards, generally adopted, to which people feel they must conform, and those standards tend to rise with the improvements in industry which bring new articles of consumption within reach. The list of things of common use and consumption is being constantly lengthened and would be astonishing to-day in comparison with what it was when our grandparents kept house. An old price list of the merchandise of ordinary trade is a very simple affair. It is not very many years ago that each community was largely self-supporting in all the usual necessities, and of course the appeal to taste and the invitation to multiply purchases have been enormously strengthened by the improvement in transportation facilities which has placed the products of the whole world on sale in every community.

The Discipline of a Harder Life.—Our forefathers lived more simply, then, for one reason because the variety of things to be had now did not exist to tempt them. The limitations upon production and transportation placed arbitrary limits upon indulgence. The diet, clothing, and household conveniences of the early settlers of New England would not be much of a burden to the incomes of their descendants to-day. And they were simple not only in their habits of expenditure but in their views of life. The religious motive was strong with them and was a moral restraint upon the desire for anything like luxury. The habits of methodical economy fixed by these conditions made them thrifty and prosperous as the methods of production and transportation improved and their command over natural resources increased.

The same phenomena have been seen when the peoples of older countries, where the conditions of life were harder than in the United States, have emigrated to this country. With their simple habits of living, acquired in the old environment, their accustomed industry, and the ambition to own property newly stimulated by the possibilities existing here, they have been usually more thrifty and successful than the native-born population reared under more favorable conditions. The latter have sometimes lacked the discipline which the more vigorous conditions imposed and have lost something in resolution and concentration of purpose from the easier circumstances and wider field of choice surrounding them.

The Appeal to the Consumer.—We have reached the stage where the appeals to choice and taste are of more importance in the market than competition in price. The old staples in wearing apparel give way to new creations which cost more, and the old methods of vending foodstuffs are superseded by the package deliveries which are more pleasing to the taste and doubtless more sanitary but which also are more expensive. We pay for convenience every time rather than undergo inconvenience. The modern science of advertising has opened vast market possibilities to every article which makes a new appeal to the public, literally creating new wants by offering new satisfactions. The art of catering to the public is highly developed, and consumption is greatly stimulated by such artificial means as changes of styles and seasonal appeals. The temptation either to discard

that which for the time is out of date, even though its utility is as great as ever, or to conform to new ideas and to alter or replace is very great and results not infrequently in overdoing, incongruity, and extravagance. We are overburdened with things and overstimulated by the spirit of emulation and change.

It does not, of course, follow that improvements in methods of production and higher standards of living are detrimental rather than advantageous, or that there are no offsetting gains from the impulse to change and have variety. In the first place, as population increases it is absolutely necessary that the methods of production shall be improved in order that a greater number of people shall be supported from the natural resources; otherwise the pressure of existence would become constantly more severe. Beyond this, the object of industrial progress is to change for the better the living conditions of the people, to surround them with the refinements of life, and to afford leisure for intellectual cultivation and development. It is apparent, however, that there is a great amount of misguided expenditure, unprofitable to those who make it and a waste of effort or worse so far as the community is concerned. Expenditures for the gratification of the appetites, which yield no real sustenance and are more or less prejudicial to health, may be mentioned first. The outlay for eatables and drinkables in excess of what are required for health is enormous. The outlay for amusement and recreation is probably no larger in the aggregate than it ought to be and perhaps not so large as it should be, but surely there is a large expenditure that is unwise. The waste upon mere ostentation, which is usually evidence of bad taste, is large. In these indulgences we in this country go much beyond any other people, for the reason, no doubt, that the average income in this country is larger than anywhere else. The immigrants from the older countries come with the careful habits bred in them, but their children, reared under the new conditions, have the more "liberal" ideas about spending money.

Fallacies in Extravagant Expenditure.—By a mistaken notion the idea of free living has been commended and popularized as a means of distributing wealth from those who have a surplus to those who are in trade or who work as wage-earners. This is due to a failure to discriminate between productive and unpro-

ductive expenditures. The \$150,000,000 which has been expended in reconstructing the Erie Canal has given employment to labor and made a great market for steel, cement, and other products of labor, and now that the canal is completed it will render a great and continuous service to the public. On the other hand, money which is unproductively expended, although conferring incidental benefits in the act of disbursement, is without after results. It diverts labor from work of permanent value, which would add to the enduring wealth of the community, to employment which serves only personal or temporary purposes. Endless waste has resulted from the propagation of the mischievous theory that a rich man was doing a praiseworthy act in hiring an army of servants to minister to his own personal wants. It would be vastly better to give them employment in his regular business, for legitimate business can continue only by rendering value for value received. The frugal person who disciplines himself to save and invest in interest-bearing securities affords employment to wage-earners as truly as the man who lavishes money on servants attendant upon himself, but the former enlarges the wealth-producing equipment of the community at the same time.

In some quarters mistaken zeal for the interests of the wage-earning class has prompted the advice that wage-earners deliberately adopt the policy of living up to their entire incomes, on the theory that wages tend in the long run to be fixed at the cost of living to the worker and therefore that if the cost of living is demonstrated to be less than they are receiving wages will tend to decline until they lose the surplus. This is pure theory and one of the speculations related to the Malthusian doctrine. The truth is exactly opposed to this proposition. Under modern conditions, where enterprise and industrial progress are always waiting on new supplies of capital, every accession to the capital supply means additional demands upon the labor market and new or additional services to the public, of which the wage-earner himself is a part. The surplus which the wage-earners annually save is in itself an important part of this new capital which constantly augments the demand for their own services.

The Personal Aspect.—Thrift, then, from the standpoint of the individual, means a judicious application of income to obtain

the largest and highest satisfaction in the long run, both through personal gratification and security and in the advancement of the community of which the individual is a part. It does not always mean saving money, for the saving of money is only a means to an end. Money is saved for the purpose of investment with a view to creating a larger income, and the larger income in turn is dealt with in the same way. Money may be invested in an education, or it may be invested in better living conditions surrounding a family. No expenditure of income is of greater public benefit than that which contributes to healthful surroundings, physical and moral, for a family of growing children, and nothing would be further from the idea of thrift that is here advocated than a shortsighted policy of saving which would dwarf the powers of the rising generation.

Psychological Value.—Thrift means self-restraint, a deliberate choice of expenditures, a preference for that which is of lasting importance over that which is of mere temporary gratification. It means rational provision against the accidents and reverses, a part of the common lot, which are easily surmounted if preparation is made in advance but which may be disastrous if there are no resources in reserve. It means comfort and independence in the later part of life, a position of influence and corresponding usefulness in the community at a time when, if thrift has not been practiced earlier, the position may be one of dependence and anxiety. It means a development of character which can be accomplished in no other way than by the exercise of intelligent, resolute choice at the cost of self-denial. In short, it means a well-ordered life, guided by a high sense of personal responsibility, instead of a drifting career, shaped and determined by the temptations that play upon it.

No more valuable lesson can be taught to children than that of wise discrimination in expenditures, developing as it does the powers of reflection, foresight, and the will, and laying the foundations for useful citizenship.

The National Aspect.—While thrift is rewarding the individual for abstinence by giving him character, independence, and influence, it is strengthening the Nation by bettering the conditions of life for all members of the community. The wealth which

thrift accumulates belongs not only to those who hold the legal title to it but in a very practical way to the entire community. All wealth productively employed is in the service of the public. It cannot be remuneratively employed otherwise. The public will use it only as it can see its own advantage in doing so. It conducts the activities which supply the public wants, and as the fund grows the general welfare is enhanced.

A period of rapid industrial development and rapid exploitation of natural resources is not most favorable to the cultivation of personal thrift. Where there are so many opportunities for making money the thoughts of the people are bent rather upon increasing their earnings than upon methods of saving. No doubt that well describes the difference between the American and European attitudes on this subject.

Types of Savings Institutions.—One result of this difference has been that less attention was given in this country than abroad to means of facilitating and encouraging small savings. A few of the Eastern States, notably New York and Massachusetts, have excellent systems of mutual savings banks, but many of the States have little or no provision for savings banks, although the commercial banks everywhere invite savings deposits and generally provide all required facilities. In recent years the national banking act has been amended to reduce the required reserve against time deposits and to permit the loaning of such deposits upon real-estate security. This places the national banks in a position to render savings-bank service. The postal-savings system has been established only a few years and appeals more particularly to foreigners unfamiliar with our banking laws and accustomed to rely on Government savings institutions. The rate of interest paid by the postal banks is lower than that paid by national, State, and savings banks, and to whatever extent they attract deposits from the national banks and State systems they work to the disadvantage of depositors. Local building and loan associations and life insurance companies are doing a valuable work in promoting systematic savings.

War-time Channels of Savings.—The enormous sales of liberty bonds and war savings and thrift stamps hold out great promise for the development of thrift in this country. Millions

of people who never knew it before will have experienced the sensation of having income from another source than their own personal earnings. Saving is largely a matter of habit and attention. The choice between saving and spending depends upon the strength of the competitive appeals at the moment, and much may be done to build up and make habitual the resolution to save. The ends to be accomplished may be so clearly set forth and emphasized that spending for trivial objects will afford no satisfaction. This generation has never known so many powerful motives as exist to-day united in behalf of careful, intelligent, public-spirited economy. In the first place we are asked to live simply and avoid the employment of labor unnecessarily in order that labor may be released to the army and to the war work for the support of the army. We know that in the first year of the war the Government's expenditures have been only two-thirds of the aggregate sum for which it had planned, and this disappointment is due mainly to the enormous demands of private consumption upon the industries and transportation systems of the country. Our people have not understood that in attempting to live and do business as usual they were withholding the country's industrial equipment from the Government's use. We must adopt the habits of simple living that the Government's wants may be supplied and that we may turn the largest possible share of our incomes into the Government Treasury.

Present Incentives to Save—Individual.—And then from the standpoint of intelligent management of our private affairs there are unusual inducements to live simply and save for the future. The prices of all articles for consumption are very high, while the prices of all choice securities yielding an assured income are unusually low. Seldom is there such a reward for abstinence and economy as now. Never again after this war, in all probability, will it be possible to buy the bonds of the United States Government to yield more than 4 per cent interest. As a people of keen business instincts and practical sagacity the policy of avoiding that which is temporarily dear and buying that which is temporarily cheap should commend itself to us.

It is well to bear in mind that conditions after the war will not be just the same as before, and that it is more than ever

the part of prudence to accumulate reserve resources against the uncertainties of the future. We know that this Government will have a great debt to carry and ultimately pay, and that the interest charge alone will require a great increase in Federal taxes. There is one way, however, for the individual citizen to get out from under this burden, and that is by buying Government bonds in such a quantity that the interest received from them will equal the taxes which he will be called upon to pay on account of the debt. That the taxes will have to be levied is a certainty, but it should be the ambition of each taxpayer to see that the share which he pays will flow through the Treasury back into his own pocket. If that should be accomplished the debt would be as good as paid.

Present Incentives to Save—National.—The period following the war will inevitably be one of unsettlement. No doubt the governments of all countries will take steps to support industry and supply employment, but the shifting of millions of people and the reorganization of business after four years or more of disruption must be attended with much uncertainty and confusion. There will be plenty of work needing to be done, but the various branches of industry are mutually dependent, and until they are established in helpful relations to each other general prosperity will not be assured. Against such periods as this the thrift which accumulates reserve purchasing power gives not only a protection to the individual but stability and support to the entire situation. Moreover, the United States must do more than preserve itself from reaction and depression. The whole world will be needing capital, and this country should be able to supply it in every kind of equipment and supplies. However, we already have most of the gold of the world and have bought back the greater part of our own securities formerly held abroad. Therefore, in order to sell abroad and keep our industries fully employed we must be prepared to give credit, and that can be done upon a large scale only by creating a great, broad market in which foreign securities can be distributed. A wise economy will serve this country by placing it in a position of financial and industrial leadership and at the same time enable it to render world-wide service in the period of prostration and need which so many regions will face when this war comes to an end.

XXIII

FISCAL RECONSTRUCTION

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THE THREE ASPECTS

In the domain of public finance, even more than in any of the other topics discussed in this volume, the subject of reconstruction presents almost insuperable difficulties of treatment at this time. It is entirely uncertain as to how long the contest will last and what will be the future drain upon our resources. No one can foretell how large will be the ultimate public debt, nor to what extent the necessity of meeting the outlays of the war will affect our future productive capacity. The destruction of capital and the depletion in the numbers or the strength of the labor force which we shall suffer are both unknown factors.

Since the extent and the nature of the necessary reconstruction are alike uncertain, the methods of procedure must themselves lack precision. But whatever be the final result, there are at least three difficulties which will confront us after the close of the war and which will need a statesman-like discussion and solution, irrespective of the length of the war and of the gravity of the situation. In any event, we shall have a huge debt; we shall

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have to find the means of defraying the vastly increased expenditure of the post bellum period; and we shall have to consider, as never before, the problems of economy and efficiency in public finance. In other words, the three great problems of fiscal reconstruction will be those of public debt, of public revenues, and of the budget.

THE DEBT

Were this a discussion of war finance, rather than of reconstruction, the subject of the public debt would loom even larger than is actually the case. For it would then be necessary to discuss the problems connected with the creation of a public debt, such as the desirable proportion of loans to taxes, the length of the loans, the character of the bond issues, the conditions of emission, and the provisions for amortization. In short, almost the whole theory of public credit would need elucidation.

As we are dealing with the problem of reconstruction, however, we must take all these things for granted. We must assume the existence of a huge debt bequeathed to us by the war. There will then remain two basic problems, that of the conversion of the debt and that of the payment of the debt.

The Conversion of the Debt.—With the first problem it is impossible to deal at the present time. In the case of a long-continued war the rates of interest at which successive war loans can be floated naturally rise. They will rise not only because of the probable weakening of the Government credit but also because of the increase in the general rate of interest which inevitably accompanies the destruction of capital during a war. The process has already begun in the United States. Our three liberty loans have been issued at the continually rising rates of $3\frac{1}{2}$, 4, and $4\frac{1}{4}$ per cent. What the future has in store for us no one knows. All that can be said is that if the war should leave us with a huge debt, most of which will probably have been contracted at a high rate of interest, one of the first duties of reconstruction will be so to readjust the debt as to take advantage of the restoration of credit and the fall in the interest rate. The larger the debt and the higher the rate of interest paid by the Government, the greater will be the need of a skillful

utilization of the sound principles of conversion. But in the absence of any definite facts, present discussion is useless.

The Payment of the Debt.—The other problem—that of the payment of the debt—is on a different footing. For here we have the questions, not only as to whether the debt should be paid at all, but how rapidly it should be extinguished. Peculiar as it may seem to the average American, the problem of a perpetual debt has by no means been finally solved. Some forms of indebtedness, to which even Americans have become accustomed, do not call for eventual repayment at all. In corporation finance, as in our railroads and other public utilities, there is neither need for, nor especial advantage in, paying off the mortgage indebtedness. The capital of our railroads is none the less capital because it is cast in part in the form of bonds. No demands of sound corporate finance require the total substitution of stocks for bonds. The same is in large measure true of public indebtedness for productive and self-supporting enterprises. There is no reason why Australia or Prussia should pay off the public debt which represents the investment in its railroads; there is no reason why New York should pay off the Croton water or the dock or the subway bonds, the interest on which is more than met by the respective earnings of operation. A perpetual debt in all such cases is a mere bookkeeping device. It constitutes no burden of any kind upon the community.

The European Theory of a Perpetual Debt.—In the case of debts contracted for war purposes the practice, if not the theory, in the chief European countries has been the same. Great Britain has made only a slight effort to extinguish the debt contracted during the Napoleonic wars; the war debt of France accumulated during the nineteenth century has likewise not been substantially diminished. The chief arguments in favor of a perpetual debt, even of this kind, have been two in number. It is argued, in the first place, that with the progressive increase in the wealth and productive capacity of modern nations a fixed debt constitutes a continually diminishing burden upon the community. In the second place, the argument is advanced that, at all events in so far as we have to deal with a domestic debt, there is virtually no burden upon the community as a whole. What

actually takes place, so it is said, is a payment from the right hand to the left hand, a transfer of income from the taxpayer to the bondholder. If the debt is accompanied by an appropriate revenue scheme, these mutual debits and credits will be satisfactorily adjusted from the point of view of public policy. Nothing will then be lost by the decision to maintain a perpetual debt. On the contrary, it is urged, the attempt to pay off the capital of a huge debt may involve dangers to the productive capacity of the Nation which will outweigh any possible benefits.

The American Theory of Repayment.—The American theory has been the reverse, largely for reasons dependent upon the disparate economic conditions of the United States. In the first place, the tempo of economic growth has been much more rapid in a new community like ours. The growth of our wealth and social income has been so prodigious that the country has experienced no appreciable discomfort in getting rid of a continually diminishing burden. So productive and so easily tapped have been the ordinary sources of revenue that from the war of 1812 to the period after the Civil War the extinction of the debt took place almost automatically. Our fiscal troubles during the nineteenth century have almost always been connected with utilizing a surplus rather than providing for a deficit. Our embarrassment has been not how to pay the war debts but what to do with our excess revenues.

The second consideration which differentiated American from European debts was that while in England and France the debts were almost exclusively domestic debts, our debts were in large part foreign debts. Instead of diverting the revenue from the taxpayers to the bondholders within the country, we were under the necessity of sending a portion of our annual production abroad to satisfy foreign creditors. Under such conditions there could be no doubt of the existence of a burden on the community, and with the realization of this burden there came a determination to get rid of it.

Application to the Present Problem.—After the conclusion of this war, however, the disparity between American and European conditions will be far less than has previously been the case. In the first place, now that all our free land is virtually gone, the

conditions of economic growth will not be so different in the United States from those to be found in Europe. Now that we have left the period of economic puberty behind us and have to confront the necessity of a public expenditure suited to a fully developed economic community, we shall not find the waters gush forth so plentifully from the sources of public revenue. We have reached the period of fiscal maturity, with all its complications and its embarrassments. In the second place, the relative position of Europe and America is now completely altered. For while our public debt must needs be well-nigh exclusively domestic, we shall have been lending such large sums to the Allies that, in these cases at least, no mean part of the debt will be held abroad. The conditions of the nineteenth century will, in short, have been reversed.

Does this mean, then, that the European countries will accept the theory of debt repayment and that we shall adopt the principle of a perpetual debt? Whatever may be the conclusion arrived at by the European countries, there is little doubt that we shall none the less oppose the theory of a perpetual debt and shall seek to extinguish ours as soon as possible. There are two reasons why fiscal reconstruction after the war will demand a rapid payment of our war debt.

Reasons for Rapid Repayment of Debt.—In the first place, we must recognize the fact that in a community like ours new demands will continually be made upon the Government for expenditures of a social character. With the growth of real democracy the community will begin to spend constantly larger sums relative to the growth of wealth. We are only in the first stages of really socialized democratic expenditure. When even Great Britain is already devoting tens of millions of pounds to a single item like social insurance, we can easily look forward to the time when the American governments will be spending their hundreds of millions of dollars for communal purposes of a more or less immaterial character, the very import of which is only dimly grasped at present. In proportion as this feeling spreads there will be a growing reluctance to devoting so large a part of the social income permanently to the service of the debt. We see even now the difficulties created in New York City by the narrow margin left in the debt limit and by the growing

inability of the city to increase its revenues to the point where a constantly greater surplus above the interest on the debt is available for needed purposes. The coming social democracy in the United States will insist upon removing what at all events seems to be an incubus and will cheerfully undergo the greater sacrifices needed for a time for the payment of the debt in order to wipe the slate clean and to allow the future to deal with its own expanding problems.

The second reason why there is need for a payment of the debt is to be found in the fact that there will in all probability be no such equitable adjustment between the taxpayer and the bondholder as is assumed in the theory of the burdenlessness of a public debt. In a consideration of the adjustment between poor or rich bondholders and taxpayers there are four possibilities:

First, there may be a wide distribution of the debt in the sense that most of the bonds are held by people of little means, while the system of taxation may be so arranged as to burden primarily the wealthy.

Second, there may be the same wide distribution of the debt, but the taxes may fall chiefly on the consumption of the poor rather than on the wealth of the rich.

Third, the bonds may be held predominantly by the wealthy classes, and yet the burden of taxation may rest on the poor.

Finally, both the bondholders and the taxpayers may be found to an overwhelming extent among the wealthier classes.

Whatever may have been the situation in the past, it is evident from what is happening at present throughout the world that modern industrial development combined with modern democracy conspires to make the fourth alternative probable. The immense increase of wealth in recent times makes it almost inevitable that the great mass of the colossal war loans should be subscribed by those classes which really have at their disposal a surplus of either capital or credit. On the other hand, the tendency toward democratic justice in taxation forcedly leads to the placing of the burdens where they can most easily be borne. The necessary result will be that both bondholders and taxpayers will be found primarily in the well-to-do classes of the community.

Rapid Repayment Favorable to Enterprise.—It would be a mistake, however, to conclude from this that there will be a sub-

stantial identity of interests between bondholders and taxpayers. On the contrary, there is going on at present a decided differentiation of taxation between two clearly marked subdivisions of the wealthy class. This distinction may be expressed as one between enterprise and property. It is the same distinction that is sought to be emphasized in the British classification into earned and unearned income. Modern taxes are being more and more clearly differentiated between taxes on individual wealth and taxes on business. While it is indeed true that the wealthy individual may have a business and that business prosperity may lead to an accumulation of wealth, it is none the less true that in a rapidly growing and shifting community like ours the burdens upon enterprise as such are coming to be sharply differentiated from those on property or on the income of property. With the need, seen everywhere to-day, of supplementing taxes on individual income or property by taxes on business or enterprise, a new division is created and a new argument for the rapid payment of a war debt emerges. For while the bondholders will necessarily be found in the propertied classes, the business man will more and more object to the burden of raising a substantial part of the revenue required to defray the interest of a perpetual debt. He will, as he ought to, use all his influence toward having the debt paid off rapidly out of the revenue of the class in which the bondholders are to be found.

The disparity of interests, therefore, that may be expected after the close of the war is not so much one between wealth and poverty as between property and enterprise. The greater the accumulations of wealth in modern times as compared with earlier decades the stronger become the arguments for debt payment.

Summary.—Our conclusion, therefore, is that in a country like the United States a perpetual debt is inadvisable. The old argument has indeed been replaced by new ones of a different character but of none the less compelling a nature. One of the first problems of reconstruction will be the rapid payment of the war debt.

At the outbreak of the war the present writer, who had this contingency in mind, advocated the emission of relatively short time (ten-year) bonds.² This suggestion was not followed in

²"How to Finance the War": Columbia University Papers No. 9.

the first and second liberty loans, the length of which was fixed at a considerably longer period. In the third liberty loan, however, the Government has seen fit to adopt the suggestion, and the bonds are to run for only ten years. It is to be hoped that this example will be followed in future issues, even if the other suggestion of throwing the issue into the form of serial rather than sinking fund bonds fails of acceptance. In any event, however, we are putting ourselves into a position which will be favorable to a comparatively rapid extinction of the debt. That is the first task to which we shall have to address ourselves after the war.

TAXES

Increase of Government Expenditure.—In order to make this rapid repayment of the debt possible it will be necessary to provide the wherewithal. The situation, however, is complicated by the fact that even without this necessity the public expenditures will be on a vastly augmented scale. In the first place, there will be the increase of expenditures bequeathed directly by the war. Foremost among these will be the provisions of the insurance law, replacing the hitherto existing system of pension legislation. The longer the war lasts and the greater the number of casualties, whether fatal or otherwise, the more colossal will be the outlay for compensation calculated on a liberal scale. In the second place may be put the expenditures indirectly due to the war. Although the exact nature and amount of these outlays will depend to a considerable extent on the conditions of peace, it is entirely likely that the military and naval expenditures of the United States will in the future be on a scale of far greater magnitude than before. Finally, in the third place, it is scarcely open to question that the democratic movement which will almost surely result from the war will engender a change also in the attitude of the legislator toward the vastly increased expenditure which will be demanded for the common needs. In the domains of transportation, of education, of public health, of social insurance, of science and art the demands for augmented outlays will become rapidly more insistent.

Both of these streams—that of vastly increased normal expenditures and that of provision for the rapid payment of the war debt—will converge into a mighty torrent of rising expendi-

tures. Here, as in Europe, one of the fundamental problems of reconstruction will be the provision for this colossal increase of Government outlay.

New Sources of Revenue.—In many of the European countries publicists and statesmen are despairing as to the possibility of making both ends meet through the resource of taxation, ordinary or extraordinary. Almost simultaneously the idea has arisen in Germany as in England, in Austria as in France and Italy, of utilizing the powers of government in new and untried ways. These suggestions have taken two forms—Government monopoly and Government control of industry. In the first class we find schemes for the Government assumption of the railways in those countries where private ownership still existed before the war, with the demand that the railways be run, as in Prussia, on the principle of profits, so that hundreds of millions may be derived in each country from this source alone. Widespread, in the next place, is the demand for the governmental assumption of coal mines. Next in order is found the demand for Government monopoly of the manufacture or sale of whiskey, of beer, and of tobacco. To these are added the demands for Government monopolies in a variety of other commodities, like sugar, salt, gunpowder, petroleum, and matches. In some countries we even find the growing demand for Government monopolies of other raw materials and necessities of life.

Where this prodigious step in the socialization of certain forms of industry seems to be attended with peculiar local difficulties, the substitute suggestion is offered that the Government should exercise a far more rigid control, partly for fiscal purposes, over industry in general. It is well known, for instance, that in Germany, at present, many of the important industries are rapidly being converted into trusts or combinations. Not only does the Government refuse to look with suspicion upon these combinations, but it actually compels every producer, whether he wills it or not, to enter such a combination. A great part of German industry is being compulsorily trustified. The reason for this is indeed only partly fiscal. It is due primarily to the fact that German economists and statesmen realize that industry in the future is to be on a large scale and that the well-meaning efforts of those who, as in the United States, have attempted to apply

436 AMERICAN PROBLEMS OF RECONSTRUCTION

the political ideals of individual liberty to the industrial field are mistaken. It is true, indeed, that there is a great future for democracy in industry as well as for democracy in politics; but it must be a democracy not of small-scale but of large-scale production. The chief difference between what is going on in the United States and what is developing in Germany is that the movement with us is progressing in spite of the law and an uninformed public sentiment, while in Germany and other European countries it is developing in harmony with the law and a new public policy. Abroad, however, the corollary of compulsory industrial combination is strict supervision by the Government, just as with us railway combinations and traffic associations developed with increasing Government control. What has already been decided in some of the European States is that the Government shall exercise a rigid control over these combinations in the interest not only of the consumer but of the general producing public as well. What has not yet been settled, but what is being actively discussed, is the amount of revenue which the Government shall demand as the first charge on the industry.

Both of these methods—that of governmental monopoly and that of Government participation in industry—are within the range of possibilities in the United States. But in view of our past history and of the peculiar characteristics of American life it is unlikely that we shall be compelled to resort to either. Not until all our other resources have been taxed and not unless the war should continue to the point where the country should be completely exhausted and the need of collective action become as imperious as during the war itself—only in these unlikely contingencies is it probable that we shall have to adopt these expedients. Leaving a consideration of these matters, therefore, to a future which we may all hope will be successfully averted, let us turn our attention to the more modest task of considering the demands of fiscal reconstruction through a change, comprehensive though it may be, in the methods of taxation.

Taxes, Burden or Privilege.—To the attentive student of the history of taxation the development of fiscal systems during the last generation is full of important lessons. Not only has there been a great change in the fundamental attitude toward taxation on the part of all modern democracies, but the methods employed

in giving expression to this newer attitude have themselves been affected by the marked changes in the economic structure of society.

If we were to attempt a broad generalization as to this fundamental change of attitude we would say that taxation is no longer regarded as a burden to be exacted from an unwilling victim but as a contribution cheerfully rendered by those who are alive to the sense of collective responsibility implicit in the very conception of democracy. The only limitation on this idea is the insistent demand for equality and uniformity of treatment, giving to those terms the broadest interpretation that has resulted from modern enlightenment. In principle this means the definitive adoption of the conception of ability or faculty—a conception to which lip service was rendered in part in former times but which has received a newer and a richer content during the last generation. More and more we are beginning to realize that there are two aspects of the doctrine of ability to pay or faculty in taxation. The one which was emphasized by the earlier writers almost exclusively is that of sacrifice—the idea, namely, that the test of real ability to pay resides in the sacrifice imposed upon the taxpayer. More recently, however, we have become familiar with the second aspect of the principle, namely, that of privilege. This is the idea that the taxpayer's ability to contribute to public burdens is to be measured also by the privileges which he enjoys. More and more do we realize that wealth must be produced in order to be consumed, and that while the conception of sacrifice applies more particularly to the consumption or the disposal of wealth, the conception of privilege applies to its creation or production. The consequences of this will be seen below.

Impersonal vs. Personal Taxation.—Hand in hand with this distinction there has come more recently an appreciation of the further distinction between taxes on persons and taxes on things, or, as it is sometimes expressed, the distinction between personal and impersonal taxation. Of course this has reference only to the immediate and not the ultimate phenomena. For, in the end, the money has to be subtracted from the pockets of the individual who has the final control of the thing in question. But the distinction is none the less a significant one. Whereas democracy has, on the one hand, manifested a decided tendency toward the

adoption of personal taxation, the imperious needs of modern government are disclosing the necessity of a fresh resort to im-personal taxation, although in new forms and with a new content. The fiscal reconstruction after the war will inevitably be effected along these two lines. Let us analyze them.

Property vs. Income.—The characteristic marks of the change in our conception of personal taxation are the replacement of property by income as the most satisfactory test of faculty and the alteration in our conception of expenditure as the measure of sacrifice.

In former times wealth was measured in terms of capital rather than of income—as a fund rather than a flow. In primitive society, where everybody was supposed to work, where there was little complexity or differentiation in production, where there were no very rich and no very poor, the conception of a fund of wealth was as natural as it was legitimate. In the United States, as elsewhere, the democratic content given to this conception of ability to pay was the general property tax. But modern economic life has brought about a change. The homogeneous mass of property has been split up into its constituent parts; earnings are not necessarily transmuted into capital but may be spent; the modern institutions of speculation and credit often stand in the way of a correlation between actual income and capitalized income; the character of modern enterprise and the opportunity afforded to business ingenuity create a disparity between invested capital and business profits. In short, the whole modern tendency is to emphasize the importance of wealth as a flow rather than as a fund. As a consequence we find everywhere the replacement of property taxation by the taxation of profits or income. Where the tax is imposed upon the individual as such—that is, where we have to deal with personal taxation, modern economic development is leading to the substitution of the income tax in lieu of the older general property tax. Where the individual is still taxed on his general property, the tax is becoming either an exceptional measure, as in war finance, or a subordinate and ancillary addition to the income tax.

Graduated Taxation.—With the adoption of income as the test of faculty, however, there have come two further developments.

The one is the adoption of the principle of graduation or progressive taxation; the other is the acceptance of differentiation or the distinction between different kinds of income. The first principle, that of graduated taxation, was until recently introduced only timidly. In England it came only about a decade ago. But in the United States, where we have the greatest democracy in political theory side by side with the greatest distinctions of wealth in economic fact, the war has seen the driving in of the wedge of graduation until to-day, as is well known, the recipient of the maximum income is under certain conditions subject to a tax of 75 per cent, namely, the sum of 67 per cent income tax and 8 per cent excess-profits tax. While these precise rates may not be retained after the war, it is not at all unlikely that public opinion will demand the continuance of a scale of progression steeper than may be found in any other part of the world. Our hand having been put to the plow, it is unlikely that we shall desist. Sharply graduated income taxes must form a part of the policy of fiscal reconstruction.

Earned vs. Unearned Income.—The other phase of the problem, however, has not yet been attacked in this country. Whereas Italy accepted the principle several decades ago and England adopted it in 1909 by separating earned from unearned incomes, we have still to introduce the much needed reform. The higher equality in taxation can never be attained until we differentiate between the various kinds of income according to the criteria not only of the sacrifice imposed in parting with the income but of the privilege enjoyed in creating the income. While progressive taxation is, at least in part, the result of the conception of sacrifice—the relative sacrifice in paying a tax diminishing with the growth of the income or the property—the other aspect of faculty, that of privilege enjoyed in creating the income, leads to the demand for distinguishing between earned, partly earned, and unearned incomes. Differential taxation, like graduated taxation, is a corollary of the modern theory of ability to pay. We have adopted the latter; we must before long accept the former.

Luxury as a Test of Ability to Pay.—The second change in our modern conception was stated above to be the altered attitude toward expenditure. In former times taxes were in large

measure imposed upon the necessities and conveniences of life, thus burdening primarily the expenditure of the poor. Modern democracy has set its face resolutely against such widespread taxes on commodities, on communication, and on transactions. In this we find the secret of the growing antipathy to the so-called but misnamed indirect taxes. But the retention of certain imposts on particular commodities, even in modern democracies, shows the need of a distinction. In the United States, as in Great Britain, the chief so-called indirect taxes are levied upon articles like whiskey and tobacco, which properly represent either luxurious or baneful consumption. What has not yet been done and what is, nevertheless, a logical corollary of the principle of ability to pay is to extend this system of expenditure taxation to more and more luxuries and to apply here as elsewhere the principles of graduation and differentiation. When expenditure taxes are restricted to those on truly luxurious and harmful consumption, expenditure will be restored to its rightful place as a proper norm of faculty in a democratic scheme. One of the problems of fiscal reconstruction will be to work out a realization of this principle.

Impersonal Taxation.—While the income tax and to a lesser degree the expenditure tax will form the principal elements of personal taxation, the future probably has in store for us a reformulation of the old system of impersonal taxation, or taxes on things—a reformulation of which the beginning can already be seen. If we regard the taxable thing, rather than the taxable person, we find that there are three chief categories, namely, land, capital apart from land, and business. Each of these is likely to play an important part in fiscal reconstruction.

Land Tax.—Land everywhere forms the basis of our State and local taxation. In only a few places in the United States, however, is the land tax treated as a tax in rem instead of a tax in personam. But even in the greater part of the United States where land is taxed to the individual as a part of his general property the tendency is clearly perceptible to differentiate land from the rest of the property both in the rate of assessment and in the actual success of collection. In some States this process has gone through its normal evolution and the tax is assessed

on the land in rem, irrespective of the owner. While the single-tax movement has but little chance of success because of its exaggerations, the kernel of truth in the idea is to be found in the conception of privilege as applied to land and in the fact that there is a difference, not indeed in kind as the single-taxers assume, but in degree, between land and other forms of property. For while the progress of the community helps to enhance the value now of this thing and now of that, the value of land is apt to be more uniformly and consistently augmented by the growth of population and wealth. This difference in degree renders legitimate the demand, not for a single tax but for a special and additional tax on land, which will take account of the socially enhanced increment of value. Moreover, since this increased value is due not alone to local but to general causes, there is no reason, apart from constitutional obstacles, which can be readily removed, why we should not follow the example of Australia and supplement our State and local taxes by a Federal land tax, which will resume for the community a part of the values that have been created through privileges conferred, consciously or unconsciously, by the Nation at large. We have fortunately no mediæval heritage, as is found in Great Britain or some of the continental countries of Europe, to stand in the way. In proportion as public opinion comes to realize the importance of privilege side by side with sacrifice as a test of faculty in taxation, a special land-value tax—local, State, and national—will come to be considered a necessary part of the fiscal reconstruction after the war.

Tax on Capital.—The second form of impersonal taxation is a tax on capital, irrespective of the owner of the capital. This may assume several forms—a tax on capital in general or on special kinds of capital. The chief example of the former is to be seen in the inheritance tax. It is true that where the inheritance tax is imposed upon the shares, it can be considered a tax on the accidental income of the recipient. But where, as is now the case in our National Government and to an overwhelming extent in Great Britain, the tax is imposed upon the estate as a whole, it may more properly be regarded as a tax on property. It is a tax on the thing, fitly supplementing in a democratic community the personal tax on the income of the individual.

Here also, before the war, only faint beginnings had been made in the United States. But at present, under the stress of war, we have a tax which rises in certain cases to 50 or 55 per cent, the maximum being 25 per cent for the Federal tax and 25 to 30 per cent in some of the State taxes. While such a combined rate will be exceedingly rare, the very existence of such a steep graduation shows the possibilities of the system in post bellum finance. That highly graduated inheritance taxes have come to stay and that they will form an important element in our program of fiscal reconstruction is scarcely open to doubt.

Tax on Business.—In contrast to this general tax on capital we find taxes on special kinds of capital. If we distinguish between consumption capital and production capital it may be said that the tax on consumption capital may be fitly represented by the taxes on luxurious or harmful consumption discussed above. So far as production capital is concerned, the history alike of the United States and of Europe teaches a significant lesson. There are only two fiscally important forms of production capital—capital represented by the intangible forms of wealth known as securities and capital invested in business enterprise; for capital invested in land is taken care of by the land tax.

Of these two forms experience has everywhere shown that the better method of taxing securities consists not in attempting the impossible task of assessing the securities in rem but in reaching their yield as a part of the income tax upon the individual. Whatever may be the future of the so-called low-rate intangibles tax in some of our States, it is improbable that a special tax on this form of capital will loom large in any policy of reconstruction.

The situation is different when we deal with business capital. Here, however, the conception has been broadened so as to comprise the business itself, irrespective of the capital invested in the business. Thus the capital tax merges into the business tax. The business tax, like the land tax, is a tax on the thing rather than on the person. Just as the land tax is coming to be a tax on the land instead of the landowner, so the business tax is coming to be a tax on the business instead of the business man.

The business tax has gone through an interesting development. In the continental countries of Europe, when the old per-

sonal taxes of the Middle Ages were abolished by the French Revolution, they were replaced by a system of impersonal taxes, or taxes on things, of which the business tax was one. In the course of the last generation or two, however, there was a decided trend back to personal taxation in the newer form of the income tax, and the business tax was accordingly allowed to lapse. More recently, as the inadequacy of a system of pure personal taxation again disclosed itself, we find a return to the taxation of business, but this time not as a substitute for but as a supplement to the personal tax.

In the United States the development was slightly different. With us business enterprise soon took the form of corporate activity, so that America became the earliest home of corporate taxation. Our corporation taxes developed, therefore, side by side with the property taxes on individuals. While it is true that business enterprise here takes the predominant form of corporate activity, the most recent addition to our tax system—the excess-profits tax—has virtually become a general business tax, including corporate as well as non-corporate business. This business tax, like the similar war taxes in other countries, now constitutes the most important feature of our tax system. And although it is calculated primarily for the duration of the war, the possibility of its retention as a permanent element in our revenue system is by no means excluded. Now that the great fiscal possibilities of the system are becoming evident, the desirability of a continuance of the system after the war is in fact becoming increasingly clear. In considering this problem, however, only two points need to be emphasized at present. One is that any modern and equitable business tax must deal with the results rather than the processes of business. The other is that the tax must be so arranged as to interfere to the least possible degree with social production.

Summary.—It is evident, then, that in the program of fiscal reconstruction at least five important taxes will call for careful consideration—the income tax and the tax on luxurious consumption as representing the personal taxes; the land tax, the inheritance tax, and the business tax as representing the impersonal taxes. If these taxes are developed with a due regard to the principles of sacrifice and of privilege and with a due apprecia-

tion of the modern demands preferred by a social democracy of the truest type, we may confidently look forward to a system of public revenues which will be entirely adequate to the demands of the reconstruction period.

THE ADJUSTMENT OF REVENUE AND EXPENDITURE

The Relation of State and Federal Taxation.—There still remain two problems which, however, can only be briefly touched upon. The one is the general relation of Federal, State, and local finance in the post bellum period. The war has rudely dispelled many cherished notions. The doctrines of State sovereignty and of local government have given way to the imperious needs of a centralization undreamt of in our past history. The fiscal needs of the future will be distributed in a far different fashion between Federal and State or local authorities. If, as seems possible, the railways will never again revert to private ownership, the situation will be further complicated by the disappearance of one of the chief forms of State and local revenue. The old-time clear distinction between the sources of Federal and of State revenue is vanishing. The former sharp line of separation between Federal and State expenditures is being rapidly blurred. What has hitherto been no problem at all bids fair to become one of the chief problems of fiscal reconstruction—namely, the selection of the true principle to guide us in the elaboration of a system which will respond to the intermingled needs of Federal, State, and local governments. To discuss this principle here would take us too far astray; it must suffice to emphasize the importance of turning the thoughts of the statesman and the expert to this new range of problems.

Budget Reform.—Even more important than this, however, is the need of budgetary reform. The growing pressure of our taxes and the increasing recognition of the lack of efficiency and economy in American fiscal arrangements have led within the last decade to the beginnings of a consideration of budgetary reform. The immensely greater pressure of the impending burden, however, and the need of rigid economy will coöperate to put this topic in the forefront of every program of reconstruction. The problem is all the more difficult because of our po-

litical embarrassments—not merely those of political fact but those of political theory. The thoughtful citizen is only awakening to a recognition of the fact that our entire theory of government rests upon an error. We are the only civilized community which has erected a mistaken theory into the fundamental basis of our political structure. The theory of the separation of powers was a generalization which Montesquieu evolved from an erroneous interpretation of the British constitution as it then existed. Although that theory was never accepted by the British writers and was soon refuted in practice by the development of the British constitution, it found a lodgment in American minds and was before long introduced into American practice. In no part of the British Empire, not in Great Britain or Canada or Australia or Africa, is this principle of the complete separation of powers accepted. On the contrary, the executive is everywhere simply an organ or a representative of the legislature. What is often called the parliamentary form of government, found almost everywhere else in modern democracies, is contrasted with the presidential form of government, characteristic of America. This unfortunate sharp separation between the executive and the legislative in the United States is the chief reason why we lag so far behind every other country in the adoption of a modern budget. Our shortcomings are due not simply to inefficient administration but to fundamental errors in political organization. The sooner this fact is recognized the easier will be the process of reconstruction after the war. Fiscal reconstruction will demand, as a necessary prerequisite, political reconstruction. Far from having solved our basic constitutional problems, as we used to think, we are only at the very beginning of constitutional reform.

But while an entirely modern system is well-nigh hopeless of accomplishment in its entirety without fundamental constitutional changes, much can yet be done, even under our present political system, in improving upon the budgetary anarchy which is found in Federal and State governments alike. With the detailed principles of such a budgetary reform this is not the place to deal. We shall be content to have pointed out its paramount necessity.

Conclusion.—It is evident, therefore, that the problems of fiscal reconstruction are by no means among the minor problems that

446 AMERICAN PROBLEMS OF RECONSTRUCTION

will confront us. Social prosperity depends at bottom upon economic considerations. Government, as the war has now so convincingly shown, is becoming an increasing factor in shaping the scope and limits of these economic considerations. Government can carry on its work, however, only if it is provided with adequate means. Thus we are brought face to face with the fiscal problems which must be solved if we are to have social progress. Fiscal reconstruction is the cornerstone of the social edifice of the future.

XXIV

CAN DEMOCRACY BE EFFICIENT? THE MECHANICS OF ADMIN- ISTRATION

BY FREDERICK A. CLEVELAND ¹

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We Americans are called a practical, hard-headed people. This is a tribute to success in the management of our everyday business affairs. And as individuals we have succeeded. We have succeeded because we have learned our work-a-day lessons in a hard, rough school, which has been ruled by "the god of things as they are." In this hard, rough school he who "saw things" that were not real, he who suffered from illusions, was soon put out of the race. The earth (or our section of it) and all that is in it was divided among those who could make the most of it.

Lack of Standards Due to Lack of Competition.—In matters of public business no people has suffered more from illusions. And the reason is quite plain. In our public business, before the outbreak of this war, we were not required to measure up. We therefore had no competitive standards. In fact, we started

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out with the thought that we did not need any standards; that government is a necessary evil; that it was not to be made efficient; that it was not to be built strong for service; that the less we had of it the better.

Our aim was to make the Government weak because we thought that by so doing we were protecting our liberties. And our whole political history has been true to this. Our Government has been both weak and wasteful to a degree which has been appalling.

Politically We Still Live in the Eighteenth Century.—One of the things that this "made in Germany" world war is doing and will continue to do is to help us to get into a mental attitude of right thinking about our Government—to clear away a lot of heirlooms of political philosophy that, however useful they may have been found in their day by furnishing slogans to a nation of frontiersmen, are about as well suited to present conditions as are the instincts of a mud-dauber wasp to fit him to live in a colony of bees.

Let us not pass this point too lightly. Politically we are Quixotic. We are living in an almost forgotten age. We are still in the woods fighting King George. And the dominant notes heard in our Congress to-day are taken from the melodies made popular by Tom Paine when that time-worn, dog-eared philosophy known as *laissez faire* was in vogue; when it was the ambition and the opportunity of every young man to fly wasplike with his newly wedded wife to some out-of-the-way place and there settle down without bothering with or being bothered by the Government.

Some of the Illusions from Which We Suffer.—Our forefathers faced a real world, and their thoughts and actions were attuned to it. But it was quite different from the one in which we now live. And in our private affairs we have changed accordingly. When competitive production pointed the advantage of coöperation we gave up our wasp economy. We began to work like bees and live like bees. But in our public and political relations we still continued to think and act like mud-dauber wasps, with the result that we became victims of numerous illusions. Among the illusions from which we were suffering at the out-

break of this war, these may be mentioned in passing: The "minute-men" illusion—the idea that all we have to do for military protection is to call for volunteers, and an army full clad and full armed will spring up which can "lick anything in sight"; the "pacifist" illusion—that if we but keep our poise, remain placid and unmoved, refuse to spend our time and substance training citizens to fight when others are preparing for war, our example will be overwhelming; the "socialist" illusion—a honey-bee philosophy that carries with it a splendid coöperative idealism but too often, as in Russia, looks for success with little thought given to the mechanics of production and distribution; the "demi-god" or strong-man illusion—which pictures a heroized "he-man" appearing like a Greek god in railroad offices, factories, and ship-yards, and presto! all the incompetence, all the inefficiency, all the waste due to lack of planning, lack of organization, lack of training, both in leadership and in team work, vanishes—which assumes to think that this "he-man" can bring forth fruits which would make our slow-plodding German green with envy; the "Joan of Arc" illusion—that all we need is a great inspirational leader, some one who can, through the art of dramatic appeal, mobilize the minds of a hundred million simple-minded folk without bothering about any of the details of administration.

The War Has Forced Us to Face a Real World Politically.—In this war our dreams of democracy are being made real by practical test. We have been forced against our will to accept the gauge of battle or give up our notions of human liberty. When we were forced to choose between servility or fighting Prussianism, we were forced to live politically in a real world, though a very different one from that in which our forefathers lived. We could have no more illusions. No longer could the campaigner who sought to "represent" the American people win applause and support by dexterity in the art of "twisting the Lion's tail." We were busy getting ready to fight. No longer could cart-tail orators "make the eagle scream" by dramatically portraying our President as an embryonic "reincarnation of a great Ogre reaching out for the throat of our national goddess." We saw the need for leadership. We began to "see ourselves as others see us." We became conscious that while we were still under the spell of our illusions we had stood by in childish innocence watching the

Prussian war lords build their great war machine, little dreaming that it would be used to crush us; that we had stood by with our faces turned while Belgium and France were being trampled underfoot; that for nearly three years we had stood by while citizens of this and other neutral countries were being murdered by the thousands, refusing to believe in the things that were real.

Our First Realization of the Need for a Strong Government.—We had shaken off our illusions about Prussianism. When finally we came to see things as they are, when we elected to “do our bit,” when we stood forth as a Nation to take a fitting part in carrying democracy’s burden, we went into a struggle that called for action. To “do our bit” we must have unity of action by a hundred million people. We must harness up all the inventive genius, all the machinery of destruction, all the machinery of production, all the man power, the mule power, the motor power that this Nation could bring into use. All our human and material resources must be directed to one purpose. The dominant national need was team work—unity of effort in order that we might prove in actual competition with Prussian autocracy that democracy can develop an efficiency that is adequate for self-protection. On this our success depends. Depends, for we are still on trial. Our success as a democracy depends on our ability to master the mechanics of efficient coöperation, on our ability at the same time to master the mechanics of popular control.

THE MECHANICS OF NATIONAL EFFICIENCY

Let us first consider what it is we must do in order to master the mechanics of efficient coöperation. This must come first, because if in this we do not succeed to a degree that will give us an advantage in this trial of strength with the most efficient human machine the world has ever known, we must accept defeat—the institutions of democracy will be crushed.

Strong Centralized Leadership a First Essential to Efficient Coöperation.—The first essential to efficient coöperation is strong centralized leadership. The stronger this leadership can be made the better. Experience in a real world of competitive effort has taught us to accept this as a practical conclusion—as a funda-

mental principle of organization and management. It is accepted and applied as a principle in all our private undertakings. Now as a Nation in our public affairs we are forced to accept this principle or acknowledge defeat. To do so, however, we must completely overhaul our machinery of political control. Let us have no more illusions about this. In our efforts to make our democracy safe against ourselves, we have robbed our Executive of leadership. In the Federal Government, because we distrusted ourselves, because we were still fighting shadows, we took initiative for the conduct of our business away from the Executive and divided it among one hundred and ten different irresponsible Congressional committees—committees ruled by the principle of seniority, whose accountability is to a small and therefore self-seeking constituency. To realize the length to which legislative sabotage has been practiced on the Executive with our consent and approval, with a view to making centralized leadership impossible, it is necessary only to reflect that there are now more than thirty Congressional committees each in its own particular sphere dealing independently with subjects of finance, revenue, expenditures, and appropriations. But this is not the whole picture; in order to make sure that our liberties may not be violated, these one hundred and ten irresponsible committees (each in its own domain our real Congress) have built up a business organization in which they deal with more than a hundred irresponsible cross sections of the administration.

The ship of state has been divided into over a hundred airtight compartments to prevent the crew from sinking it before our eyes. And instead of the control being put under the President as captain, authority has been sliced up and separately wrapped in parcels, each parcel being securely bound with strand on strand of red tape to make sure that no one can tamper with it except one or another of these irresponsible committees. Such is the organization that we have slowly and painstakingly built up to prevent team work—prayerfully conceived to make effective executive planning impossible.

With this human machine we started out to win the war against the Prussians, its chief mark of distinction and claim to renown being the promptness with which each bureau head, when asked by the President to do something, could turn to statutes and decisions and demonstrate beyond all peradventure that the particu-

lar thing requested could not be done—could show in how many different ways the obviously simple, practical needed thing, if done, would make both the bureaucrat and his titular superior a law-breaker. Even with all the chaos and confusion attending our lack of executive leadership, Senators, both Democratic and Republican, spent long wordy weeks telling each other why they were against the Overman bill—the purpose of which was to give the President power to reorganize the departments and other agencies of the Government so as to make them more efficient.

“It is dangerous to put so much power in the Executive!” “It would make the President the most powerful autocrat the world has ever known!” “It is undemocratic!” But with its eye turned to France, where millions of men have gone to fight for democracy, the country was conscious of the fact that the lives of their soldiers were being imperiled for lack of something—something that the Hun had with him—something which the Kaiser interpreted as “Gott mit uns.” With the opposition to centralized leadership we became impatient, when the outcome of the war was hanging on the issue. No longer were we willing to accept the good old doctrine that it is democratic to be shiftless—unprepared. No longer were we willing to accept the principle that democracy can run successfully without strong leadership.

But democracy is tenaciously conservative. President Wilson urged the Allies last November to centralize leadership—“Unity of plan and control over the conduct of the war for all the Allies.” This necessity was not driven home till after the second battle of the Somme. President Wilson urged the passage of the Overman bill, and it was not till the sense of necessity became overwhelming that old-time prejudices were set aside. Then public opinion expressed in a thousand different ways came to the support of the Executive. The Overman bill was passed. The President by statute was given power to do for all departments what officers like General Goethals had already begun without specific authority—to cut the red tape, smash down the bureaucratic walls which had been built up under the protection of Congressional committees, clear the way for the upbuilding of an organization which under common leadership could conserve all the man force and material resources of the Nation. The principle was accepted by Congress which President Wilson is reported to have laid down in dealing with the Supreme War Council, that “unity of action

through centralized leadership must be accomplished if the great resources of the United States are to be used to advantage."

A Well-organized and Well-disciplined Line a Second Essential.—An organization is a machine made up of human parts. To function effectively each part must have its place and do its work. To do this each human unit must fit and coöperate with every other human unit. A human machine differs from a purely mechanical device in this, that the fitting process is one of training and discipline and that the individuals as working parts must be held together not by a rigid material frame or structure but by common sense, by common purpose or feeling of loyalty that each must do his part. The frame which holds the working parts of an organization together is what the French call *esprit de corps*.

The efficiency of a human machine depends on two things—*training and discipline* on the one hand, which make for individual skill in coöperative efforts, and *leadership* on the other. But the leader need not be a fixed part. The leader is only the engineer. He can keep the mechanism in order. He can tune it up. He can direct its energies. But the test of efficiency of both the engine and the engineer is found in the horse-power developed and applied to the accomplishment of group results. And those who are interested in results should be able to change engineers whenever they desire.

The importance of line discipline cannot be emphasized too much. On the other hand, the machine is not a thing which can be changed except by slow, careful piecemeal adjustment without shutting down. And even then any broad overhauling requires months, perhaps years, of tuning up. The coach of a football team spends days and weeks finding out the personal abilities and capabilities of his men. He trains each man to make him fit. He trains his men in squads—each to do a part and to "assist" in group accomplishment. He teaches them that upon the success of all depends the success of each. He puts one practice team against another to ferret out and overcome group weakness. He builds up the *esprit de corps* as well as strengthens and improves each unit and part. He spends long hours tuning up, to find out the maximum performance which is made effective. For like reason we are training our drafted men to get them ready to do their bit. We are training them to meet the great war ma-

chine that has been built by Germany during years of careful preparation. We are training a second line as well as a first line of defense. But what we have not yet fully realized is this—that the second line of defense reaches back to the last man and woman engaged in peaceful pursuits—that the welfare and success of democracy depend quite as much on leadership in control of industry and transportation as they do on control of the battle line.

A Highly Specialized Staff a Third Essential.—But leadership is limited by the powers of a single man to observe. He therefore needs instruments of control. And in human institutions these must also be organized. For reasons of economy of effort, coöperative work is subdivided into branches. Then, again, each branch is broken up into divisions. Then each division for the same reason is broken up into sections. Then each section is broken up into squads. And in each squad each man is set his particular task. The reason for the differentiation of tasks is to enable the individual to become so expert that the wear on each part, fatigue, may be reduced to a minimum. Because fatigue is primarily a matter of nerve strain there is the least wear where each act in response to command becomes a matter of habit. Such is the purpose of discipline. Specialization by branches, divisions, sections, and squads, on the other hand, is to enable subalterns in command to become expert—to become efficient parts of the mechanism of control. But the greatest efficiency is found developed in management when the chief executive can also have a staff organization, an expert personnel who are quite separate and apart, entirely relieved from line duty, who may devote all their time and thought to helping him in planning and checking up results. The staff aid to leadership is a part of the human machine quite as necessary to efficiency as a well-trained line organization and the abilities of subalterns in the line.

Germany's Success Due to the Use of These Three Principles.—A true appreciation of the value of expert or staff aids to management lies at the foundation of Germany's military and industrial prowess. Before the middle of the last century Prussia was scarcely a third-rate power—the German States being controlled by rule-of-thumb methods as a much divided feudal aris-

tocracy. In Prussia, the big State, were two men—Bismarck and Von Moltke—who saw the practical side of superior organization and methods. Bismarck gave his thought largely to external conditions. Von Moltke, organizer and executive leader, gave his thought largely to the mechanics of efficiency—to the details of organization, discipline, and planning, with a view to getting things done with greatest economy of effort and material resources.

Careful study was made of our mistakes in the Civil War and of our industrial failures. Careful study was likewise made of the mistakes of other governments and nations. By slow plodding methods Von Moltke built up an organization which was tried out first against Denmark, under conditions more favorable through the Bismarckian alliance with Austria. After this a cause for war was found with Austria, and the sphere of Prussian influence was again enlarged. Now fourteen years were given to training, discipline, building up esprit de corps. Fourteen years were devoted to tuning up Prussian line and staff; and when ready Bismarck found a way of quarreling with France so that the Von Moltke machine could again be tried out. War was declared. At that time few if any Frenchmen dreamed that Germany could win against a people who still carried with them the prestige of Napoleon—against a nation more populous and opulent, whose power had been such as to force all Europe, only fifty years before, to unite against her. But so superior were the organization and the discipline worked out by Von Moltke that inside of sixty days France was on her knees and both Napoleon III and his great army were prisoners of war.

If this does not carry conviction, we have but to turn to Japan, another people, until a few years ago despised among nations, poor in material resources, who by using the same principles of organization came to be recognized as a world power.

THE MECHANICS OF DEMOCRATIC CONTROL OVER LEADERSHIP

As in the use of high-power machines so in government there must be a careful adjustment of prime movers, actuated parts, and devices of control. What has been said about control has to do with the ability of the leader or engineer to direct the energies and determine the activities of the Government to make

it efficient. That which we criticise in German organization is not the effective use made of centralized leadership, expert aids, and a well-trained line; it is the lack of constitutional methods for making executive leadership responsible—lack of control over the executive. No one can conceive of a war like this having been brought about except by leaders who were not under democratic control.

Independent Responsible Inquiry, Criticism, and Publicity a First Essential.—In this we must not confuse popular control with the ability of an autocratic leader to get a following. Without a following there could be no such thing as autocracy. It would have been impossible for the war lords to have made all of the energies of two German nations subservient to a program of conquest, except by a long systematic process of building up loyalty to their leadership. This can be done in many ways. But democracy insists that consent shall be based on a full knowledge of what is being done.

The fundamental difference between the devices of control used by Prussian autocracy and Anglo-Saxon democracy is a difference in attitude toward inquiry, criticism, and publicity—which is another way of saying a difference in their concept and definition of trusteeship. The Prussian defines his duty as responsibility to the Kaiser. The Kaiser defines his duty as responsibility to the God of the Nation. The vicious circle in this reasoning is that the Kaiser, claiming to be leader by divine right, makes his own god, and then by a carefully planned process of education and controlled publicity makes for the German people a "Gott mit uns" which is an exact picture of his own leadership.

The underlying principle of Anglo-Saxon control is that the Government is an incorporated trusteeship of which the people are the beneficiaries. Anglo-Saxons insist on a form of control over their Executive which will make those who administer the trust subservient to the will of a majority.

By the process of controlled information and publicity the subservient German is made to believe that that form of bestial barbarity which he proudly calls Schrecklichkeit is the wrath of God—overlooking the fact that theirs is a Prussian-made god. The less confiding, less subservient Anglo-Saxon puts fear of God

into his rulers by keeping before them the threat of removal whenever a majority may say "Thumbs down."

But independent inquiry, criticism, and publicity will not win the war—and they may be so used as to make the Government inefficient. Any controlling device which may be used to advantage must be such as will not interfere with the efficiency of the prime mover. The function of control must be to make the engine safe and still permit it to develop its maximum force.

The mechanics of democratic control may be described in very simple terms. As strong centralized leadership is the underlying principle of efficiency, so in a democracy an independent representative body, reviewing and determining policies, is fundamental to control. The rest of the mechanism consists of devices for gearing in, to enable the people as the controller to operate the throttle so as to keep the use of executive power within limits. If public opinion is to be the controller and executive leadership the prime mover, then it goes without saying that some method must be found for gearing in public opinion. And this can be done by finding some effective way for keeping the people accurately informed and for permitting popular judgment to operate promptly and certainly on the Executive.

This gearing-in process is best effected (1) by making the representative body a court of inquest for the people and at the same time a medium through which to reflect their views; (2) by making it the duty of the Executive to appear before this court of inquest and frankly, openly, publicly tell what the Government under executive leadership has been doing and what it proposes to do; and (3) by making the continuation of the exercise of power contingent on a vote of confidence or approval.

This specification for a popular controlling device is simple. In practice it has been made effective by giving to a representative body control over the purse, so that supplies may be shut off, if need be, should the Executive refuse to resign at the "thumbs down" signal.

The success of all high-speed engines depends quite as much on nicety of adjustment as on correct principles of construction. The primary purpose of this court of inquiry is to insure political justice; the people are just as much interested in knowing that their executive leaders have a square deal as they are that the cards are turned face up after the play. The most effective technique

of political control was worked out by Gladstone, the great English Commoner. Gladstone's great contribution to democratic government was twofold: first, he developed, independent of the Executive, effective agencies of inquiry, criticism, review, and publicity. In addition he made these agencies responsible, as well as the Executive. In order to achieve this end the House of Commons was made a real forum in which all the contending interests that centered in the Nation's capital would be dramatized. In every contest there would be two great central figures, each of whom would be a recognized leader. On the one side would stand forth a "he-man," who has been picked out as the champion of a policy on proposal of those whose duty it was to run the Government. On the other side would stand forth an equally heroic figure who has been picked out as "leader" of the opposition. Nor was this contest permitted to degenerate into a farce or fencing match between demagogues and catch-phrasers. The case of the Administration must be tried on evidence before the people. To make the Administration responsible, the Cabinet was required to come before the House sitting as a committee of the whole and present, explain, and defend its acts and proposals. And to enable each member of the House who sat as a jurymen to know the facts about what had been going on, a critical reviewing staff independent of the executive was organized and placed under an officer called the Auditor General. It was made his duty to review every transaction currently and approve or disapprove, reporting as a brief on the facts the results of his inquiry for review by the House. Then to make sure that every matter of material evidence was brought out, a strong committee of members was organized, called the Committee on Public Accounts, the chairman of which was taken from the "opposition." Note this! With a view to having the case against the Executive fully presented, the "opposition" or critical members were made an integral part of the machinery of control. This committee was first organized in 1866 and remained in the hands of the opposition with the exception of one year (1869) from that time until the coalition Cabinet was formed at the outbreak of the war. The opposition being thus provided with every opportunity to obtain exact information about every act, as well as being given a chance in committee of the whole to ask questions

of the Executive concerning each proposal submitted, there was no excuse for uninformed criticism or for underhand, irresponsible, misleading "yellow dog" publicity. Thus provision was made by Gladstone for making the Government "visible" as well as "responsible" to the people.

The point is this: That whether by the British method, or the French method, or the Swiss method, democratic governments have found a way whereby control by majority vote has been made consistent with strong executive leadership. But in order to do this it has been found necessary to find a way whereby all the human resources, all the experience which has been developed in management, as well as in line discipline and staff knowledge, may be retained in the Government. And for this we need not spend a hundred years. The mechanics of conservation are an achievement which deserves more than passing attention, for the reason that we have never thought it worth while to conserve. Our own method has been to relegate executives to political oblivion just as soon as the reins of administration are turned over to some one else. We have overlooked the fact that those who are not chosen to play on the team are just as important as those who are chosen, provided they know the game. The importance of conserving our managing talent is found in recognition of the principle that critical review and publicity are just as vital a force for democracy as executive leadership. Canada pays Laurier a salary as leader of the opposition. Asquith is second in power in the English Government only to Lloyd George. Clémenceau must face a leader in "opposition" on the floor of the French Assembly who is just as able, just as well informed as himself and who has every facility possessed by himself for obtaining evidence of inefficiency and waste. Everywhere except in the United States provision is made for keeping two well-trained crews each tugging against the other. The one is set in "opposition" to the other for the purpose of pointing out weakness. This not only provides effective control but also keeps both sides tuned up to the highest efficiency. The representative body is thereby able to pick its most effective men to meet any emergency and to change engineers at any time without stopping or even slowing down the engine. Such is the method for making democratic control consistent with the development of highest efficiency.

Control Must Reach the People.—A second principle to be used in the mechanics of control over the Executive is this: Any device to be democratic must be within reach of the people. It must be capable of being operated so simply that merely by an adverse vote the scepter of power may be taken out of the hands of one executive leader and put into the hands of another who is picked by the majority for leadership at that particular time. The immediate instrument for making the shift must be a discretionary representative reviewing body. But this body must also be made responsible. Every political judgment must find its ultimate justification in the minds of a majority of the electorate.

RESTATEMENT OF PRINCIPLES

By way of restatement: The first essentials of successful management of a democracy are these:

1. Strong executive leadership. The stronger the better—the strongest that democracy can produce with no limitations or inhibitions so long as this leadership has the support of those who are served.
2. A well-disciplined line organization—an organized personnel as large as may be needed to execute orders and do things that the people need to have done without human or material waste.
3. A highly specialized staff organization—an organized personnel, trained and set aside to study and report facts and conditions that must be taken into account by the leader; persons who are not responsible for direction, but who may aid by making a management intelligent through staff knowledge and guidance.
4. Adequate facilities for inquiry, criticism, and publicity by a responsible personnel independent of the Executive—the making of the representative body a real forum with full opportunity given to a responsible, critical opposition under the leadership of persons well trained in the public service, a leadership as strong as the head of the administration.
5. Means of effective control in the hands of the people and their representative—a control which is prompt in its operation and which can be shifted from one hand to another without loss of efficiency or waste of resource.

Germany Used Only the First Three.—The builders of the Prussian political engine used the first three principles only. They knew the value of efficiency, but they had no interest in democracy except to crush it. The Prussian war lords kept out of the German constitution principles which make for democratic control. Their leaders gained loyal support and contentment of the people through misrepresentation and through a paternalistic service in the same way as the head of the family did under primitive law. They developed a materialistic culture which provided amply for creature comforts and which left no alternative open to the individual other than to accept a comfortable paternalism or submit to a practice of penal frightfulness which knew no bounds except the limitations of human invention.

Britain Left Out the Second and Third.—Great Britain, in building up her imperial organization, has stressed the first, the fourth, and the fifth of these principles. Britain has provided for political leadership. But she has from the first insisted that this leadership shall be responsible, and therefore the attention of British statesmen has been devoted primarily to expedients which would insure democratic control. Because of her national strength, because of her predominance, because of her control over the sea, however, it was not until the beginning of this war that Britons were made to see the necessity of utilizing the second and third principles—the necessity of providing a well-disciplined line for operating her national activities and a well-trained scientific staff to assist in executive direction.

France Used All the Principles.—France had developed an organization in which all five of these essential principles of political mechanics were used to good effect, but she was late in seeing the need and had not the human or material resources to build large enough and strong enough to compete successfully with the Prussians. It was only through brave Belgium's sacrifice that France was saved from destruction.

Russia provided for leadership but did not make it strong and neglected all four other essentials. It was nothing but her mass weight and size that held the Prussian war engine on her border for three and a half years.

America Has Left Out All of Them.—America has developed a type of engine all her own—one built in disregard of all these principles of successful organization and management. We have made no provision for executive leadership—in fact, we have gone to great lengths to prevent it. We have not developed a well-disciplined line organization. We have not developed a strong, intelligent staff—in fact, this is a thing impossible without strong executive leadership. We have not developed adequate facilities for independent responsible inquiry, criticism, discussion, and publicity, because the initiative is kept in legislative committees. We have not developed means of effective control in the hands of the people and their representatives, because we had an irresponsible Executive.

The Paramount Question.—With these known requirements and defects, we now have before us in the Overman bill the largest, the most vital political question that this Nation has ever had to decide. It is this: Shall we as a democracy insist on strong executive leadership? Shall we so organize that our Executive can effectively direct and use all the forces and resources of the Nation for common-welfare ends—be they the ends of peace or war? Or, let us put the question more broadly in view of the enterprise on which we are now embarked: Can we and our Allies so far adapt and tune up our political machinery that we may demonstrate in actual competition with Prussian autocracy an efficiency that is adequate for self-protection and at the same time make it consistent with the aims and purposes of democracy?

HOW OUR GOVERNMENT MAY BE MADE BOTH MORE EFFICIENT AND MORE DEMOCRATIC

It has been frequently stated that the establishment of a responsible form of Cabinet administration would require an amendment to the Federal Constitution. I submit that this can be brought about without even a change in statute law—simply by changing the rules of the House. If Congress were to change its rules so as to permit—and if necessary by statute require—the Cabinet to appear before it on public matters, as has been suggested—if the rules were so changed as to give priority to execu-

tive measures and a Cabinet member were required to appear personally before the House sitting as a committee of the whole to explain and defend, we would then by this simple change have the means of making the Government responsible.

And such a change in rules is necessary to make our Congressional procedure consistent with the spirit of our Constitution. The only function of Congress is to operate as a part of the machinery of control over the Executive. It was not intended to operate as a prime mover. To make Congress perform its constitutional function it is not necessary to change the Constitution. It is only necessary to gear up the machinery right.

To show what such a change in rules might mean: Let us suppose that a majority of Congress refused to support a measure or measures urged on the representative branch by the President. What would happen? What could happen? Either the President could be forced to bring in an amended bill or proposal or he could be forced to reorganize his Cabinet at any time that a majority of the representative body was against him. If the rules were so changed that he or his Cabinet would be required to assume leadership, if the President were required to have men around him who would stand or fall on their ability to command the respect and support of a majority, the Executive would be both responsible and responsive, no matter how much power might be given to him. We would have an Executive who could be given the greatest power to direct because he could do nothing if he did not have a majority back of him. Congress, at any time of emergency, could force a coalition Cabinet, a Republican Cabinet, or any other kind of Cabinet, as a condition of granting supplies.

When this point has been urged it is conceded that Congress has power to force the Executive to come before it; to require heads of departments to give a full account of their stewardship; to require the Cabinet through one of its members to present a budget and as co-members of the Administration to stand or fall together on their ability to get the support of a majority. But the question is asked, What would happen to Congress should it do such a thing? In answer it has been said, Congress would not dare to tie the hands of the Executive simply because it did not agree with financial or administrative measures submitted.

On the other hand, it is quite as clear that when the people of this country get into a frame of mind to demand the overthrow of the present methods of "invisible," "irresponsible" government, no Congressman would dare to do anything else. There is every reason to believe that the country would stand back of such a proposal. When President Taft proposed an executive budget, although Congress was not even courteous in receiving it, he was almost universally applauded by the press. And a referendum taken by the Chamber of Commerce of the United States showed that every trade body voting except one was in favor of it. When later the President issued a call to his Cabinet to prepare such a budget, though Congress passed a law with a view to prevent it, when he wrote to the Secretary of the Treasury ordering him to comply notwithstanding Congressional opposition, there were only two dissenting editorial notes in the whole country. Maryland shortly afterward passed an executive budget amendment to her constitution. Governor Lowden of Illinois made a campaign on the principles above laid down, and he won out. Governor Goodrich of Indiana won out on the same kind of an issue. Governor Edge of New Jersey got the same result. There is every indication that the people are ready to respond. What is needed is leadership. And this war is bound to bring such leadership to the front.

XVIa

TARIFF PROBLEMS

BY F. W. TAUSSIG¹

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This chapter, dealing with the tariff problems that will arise in consequence of war disturbances, will be restricted to such as have a direct and close connection with tariff legislation. There is no occasion for considering here those abnormal conditions which have only an indirect bearing upon tariff legislation—the extraordinary development of the munition-works, or the unusual conditions with regard to the supply of some raw materials, like hides and leather. Many industries for whose products there has been a marked war demand will have to face problems of readjustment after the war. But tariff legislation can do little for the war babies. For tariff purposes it is the non-war industries that call for attention—those which have been stimulated by the restriction or disappearance of imports. Many articles formerly obtained from abroad have come to be made in the United States. What is to happen to the industries which now provide them? On what principles shall we proceed in readjusting tariff rates on commodities which were imported before the war, and not improbably will be again imported after the war, if tariff duties remain as they were before?

A kindred question, and indeed in many respects the same question, is whether the United States shall in the future aim

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to be an economically independent country, self-contained and self-sufficing. Shall we look forward to a resumption of international trade on substantially the same lines as were followed in the past, or to a world order entirely new? It is inevitable that foreign trade shall be in some important respects very different from what it was before. But how great is the change likely to be and how far shall we endeavor to regulate it and control it? In some quarters there is expectation of a great expansion of exports after the war, a great increase of foreign investments, a great development of the mercantile marine and of the carrying trade, close connection of the United States with industrial matters abroad as well as with foreign politics. Others look forward to a diminution of imports, to less reliance upon foreign supply, to domestic production of things formerly bought abroad, to the maximum of industrial independence and self-sufficiency. These are very different expectations and very different points of view. They are not readily to be reconciled. If exports greatly increase, so will imports. If imports are much reduced, exports also must be expected to shrink. The policy which we shall follow with regard to tariff legislation must be consistent with our policy in the wider political and industrial problems involved.

The terms "self-sufficiency" and "economic independence" are vague. No one would propose to cut off foreign trade entirely. Whatever our tariff policy, we shall continue to export largely and to import largely. True, it is tolerably certain that the relation between exports and imports will not be the same as it was before the war. We are not likely to have the remarkable excess of merchandise exports, or so-called "favorable" balance of trade, which the records have shown for the last thirty or forty years. In any case we shall import on a great scale. If there is to be that increase of exports, absolute and relative, which is confidently expected in many quarters, we shall import in even greater quantities than before. Whatever the future relation between imports and exports, foreign trade is certain to remain a large factor in our industrial organization. Complete self-sufficiency, in the sense of domestic production of everything we use, is out of the question, and in any case it is inconsistent with the ambition for an expanding export trade. "Economic independence" is a matter of degree.

Imported goods—those imported in the past and those which

may continue to be imported in the future—are divisible into three classes, which may be styled, respectively, the military, the essential, the non-essential. The line between one and the other of the three cannot always be drawn with precision. There will be differences of opinion on the place of many a commodity in one or the other of them. But they are broadly separable; and the tariff situation will be made clearer if they are taken up one by one.

The first class, military commodities, include things needed directly for the purposes of war, such as rifles, artillery, munitions. The second, the essentials, include things not indeed needed primarily for military use, but of vital importance to the life of the nation. Such are the fundamental food materials, fuel, clothing materials, timber. With regard to these, the question whether their domestic production be deemed essential is affected by the possibility of obtaining or increasing a supply with comparative ease and speed. A thing may be essential; yet if the needed supply can be rapidly secured when needed, it is no great matter if we do not now possess a stock. The third class ranges all the way from luxuries which are clearly superfluous to conveniences and comforts which habit has made it difficult to dispense with.

I.—MILITARY ARTICLES

As regards the first class, military articles, such as guns, powder, military equipment, explosives, armor plate, and the like, the principle is simple. It is obvious that there must not be complete dependence on foreign sources of supply. The only disputable question is whether munitions shall be manufactured by the Government directly or by private industries to be supported by Government aid if unable to hold their own without it. If private industries are subsidized or supported, there must be some control and regulation of their profits. As to such things practically no one would advocate a policy of complete dependence on imports.

The principle is simple and clear. But how far shall we carry it? Shall we go so far as to assure the production within our borders of the entire supply of every item needed for great military and naval establishments?

During the early stages of the European war this question was

raised in connection with our own great exports of munitions. We were then neutral; we were selling munitions on a great scale to warring countries. Under international law our right to do so was clear. It is as well settled as anything in international law that a neutral nation may lawfully allow its citizens to sell munitions and any contraband of war to belligerents—subject, of course, to the chance of capture. But many people asked, is this rule of international law, settled though it is, a *good* one? Should the law be modified? It was argued that the extraordinary scale of our exports showed the sale of munitions to be in effect unneutral, and inconsistent with equality, with regard for good order and peace. The answer made—by Mr. Taft, for example—was that in reality such transactions were not unneutral, being in effect conducive to peace, not to war. Quite apart from the question of making a change during the very time of war, and in such way as necessarily and deliberately to influence the fortunes of the conflict then raging, the point was made that if a belligerent country could not buy munitions from neutrals, it must be prepared to supply its needs entirely and once for all from its own resources. It must make for itself, or store on a great scale, cannon, rifles, explosives, all munitions. No such vast preparation would be necessary if it could purchase from neutrals. A country which looks to peace, hopes for peace, works for peace, should not consistently adopt a policy of the most thoroughgoing preparation for war. The argument which thus defended the position of the United States in the international controversy evidently ran counter to a program of all-embracing preparation. It assumed that even for direct military purposes something short of self-sufficiency might be in accord with the best international policy. Even here, it thus appears, are some questions of degree, some stretches of debatable ground. Complete dependence on foreigners for the apparatus of war is not conceivable for a great nation; but absolute self-sufficiency is not necessarily the wisest policy.

In the same class as munitions in the strict sense would be placed materials indispensable for military supply and equipment. Of these, at least a minimum needed for the supply of the army and navy should be produced at home. Among such are iron and steel, copper, leather, wool. To be absolutely dependent upon foreign countries for them is to be under a grave mili-

tary disadvantage. But in this regard there is no serious difficulty for the United States. Under any circumstances we shall produce enough to supply the strictly military needs. Conceivably the civilian population might be inconvenienced in time of war, possibly subjected to positive suffering, because of a lack of these fundamentals, as was the case in Germany because of the lack of wool and leather. But the civilian supply raises a different set of problems, to be considered under our second head. So far as concerns military needs proper, the United States needs to be watchful concerning its supply of the guns, the explosives, the war-ships; but as regards most raw materials, and as regards the plant, equipment, and machinery necessary for working them up, the situation need cause no foreboding.

A difficult question arises concerning some articles of minor quantitative importance, which are not readily obtainable by domestic production, perhaps not so obtainable at all, yet are important for military purposes. Such are nickel and tungsten, used in hardening the ferrous metals; antimony, used for shrapnel shells; quicksilver, indispensable for firing any kind of ammunition; nitrogen (ordinarily in the form of nitrates), of the first importance in the manufacture of explosives. We have practically no nickel, no deposits of nitrates, sparse deposits of antimony, uncertain ones of tungsten and of quicksilver. What is the best way of making military provision?

There are two ways. One is to stimulate domestic production by tariff duties or bounties, or by the equivalent of bounties through government purchase at guaranteed prices. The other is the accumulation by the government of a large fixed stock or reserve, to be kept always in hand and to be available at once in case of war. The choice between the two is sometimes confused by an advocacy of domestic supply, and of protection to domestic producers, on grounds of general industrial policy. It is urged we should not be dependent on foreigners for these articles; "dependence" being used with the same implications as the term would suggest in the case of non-essentials like toys or chinaware. General arguments for protection are interwoven with the specific arguments for military preparedness. From the military point of view, much is to be said in favor of the accumulation of an ample store; it is more secure than are meager domestic mines and deposits. Such domestic sources of supply

are subject to political as well as physical vicissitudes. A protective policy, even though instituted with an eye to military needs, may be given up when a long period of peace has obliterated the traditions of warlike preparation.

A peculiar case under this head is that of the coal-tar industries, which furnish at once dyestuffs and explosives. The Germans, as we all know, had a unique command of them—a dominance such as they had in no other manufacturing industry. Dyestuffs in themselves do not belong in the military class; indeed, do not seem to belong even in the essential class. Though often spoken of as essentials for textile manufactures, they can hardly be said to be indispensable to the life of the nation, or even to its comfort. True, a textile concern which lacks good dyestuffs must go to the wall if its competitors are supplied with them; but if all alike are cut off, the consequence is simply that the community, and especially the women, will have to get on with fabrics not quite so alluring and tempting, perhaps not quite so fast in color, as they might be. The ground for considering articles of this kind in connection with military needs is the close interrelation between explosives and dyestuffs in the coal-tar industry. It is not entirely true, as is sometimes intimated, that a dyestuffs-plant can be converted into an explosive-plant overnight. But true it is that the early steps, and many of the intermediate steps, in the production from coal-tar of dyestuffs and of some important explosives are the same. At a point in the processes which is considerably advanced there can readily be a diversion in one direction or the other—either to the manufacture of dyestuffs or to the manufacture of the shell-filling high explosives. Not only has the same plant much apparatus which is available for both purposes, but the same set of trained chemists and skilled workmen can be used. The possibility of alternative use is thus one of degree, of flexibility; and the feasibility of transfer to military uses is sometimes exaggerated. Explosives as a rule are greater in bulk than the related dyestuffs; under ordinary circumstances some readjustment of plant is necessary for getting a supply of explosives from a dyestuff plant. But after all qualifications are made, a strong argument remains in favor of regarding the dyestuffs manufacture as potentially a military industry. It has the further advantage of being a military industry which can be utilized in times of peace. There is

no question that early in the war the German dyestuffs-plants were turned to the production of explosives. It is urged that such utilization of them was deliberately had in view, as one of the many preparations for the great war. Whether or not this was strictly the case during the past, it is tolerably certain that in future they will be systematically planned and supervised with a view to military availability. And it is well known that the larger American manufacturers of explosives have turned to the production of dyestuffs as an industry for times of peace.

There are other reasons—to digress for a moment—why the dyestuffs industry stands by itself. Not so much that it is a “key” industry; the extent to which dyestuffs dominate the textile and other manufactures is often exaggerated. But the complete control in the industry which the Germans aimed at before the war, and largely succeeded in securing, threatened consequences which the most convinced free-trader must regard with apprehension. Combinations in the nature of gentlemen’s agreements were in effect even then between the different concerns. Now, as all advices indicate, there is a firm *kartell*, or tight combination. Here is a foreign monopoly—a real monopoly, and not merely (what is often styled a monopoly) localization in a foreign country of an industry within which there are many competing concerns. A solid German *kartell* in the coal-tar industry is pretty sure to be a strenuous competitor. It will try to crush competition in foreign countries by selling at cost or below cost, and then recoup by advanced prices when the competitors are destroyed. Possibilities of this sort are often paraded as a bugaboo by extreme protectionists, when the facts give little occasion for concern. But here is a case where there may be veritable need for industrial self-defense.

And yet it remains, in some respects, a puzzling case. The German concerns have been ruthless competitors, and may still be. Yet they have also been, and perhaps will remain, more efficient producers than their rivals in other countries. They do the job well. They make good dyestuffs, and make them (certainly did make them) cheaper than competitors abroad. Industrial, technical, social conditions, favored the industry in Germany as nowhere else. To shut the Germans out entirely would seem of doubtful advantage to the rest of the world. A middle

ground should be found between complete exclusion and unfettered freedom. Possibly, and much to be desired, is some international agreement providing for fair competition, no deliberate dumping, no cutthroat industrial warfare; a consummation depending on the kind of peace—a true peace, a real concord of nations?—which shall be eventually secured.

Still another consideration must be borne in mind. The complete dependence on a single country for the main dyestuffs, of which we became unpleasantly aware in 1915, is not likely to be again experienced. Other countries, no less than the United States, are concerned that this situation shall not recur, and are developing dyestuffs industries of their own; notably Great Britain and France. Switzerland, long the seat of a dyestuffs industry, will remain so. In the future there will be competition between manufacturers in different nations to a vastly greater degree than before the war, and hence no longer a reliance on any one source of supply. The chance that all sources will suddenly be cut off from the United States is almost negligible. Even if there be much reliance on imported supplies, the conditions will be less fraught with danger than those which prevailed before the war.

II.—ESSENTIAL ARTICLES

Next, the second class of commodities: essentials for the civilian population. Shall the nation be quite independent of foreign supplies for its grain and its meat, its wool, leather, cotton, coal, copper, iron, and steel? The problem for many countries, and indeed for most countries, is complex and difficult. Italy has no coal; in what way shall she make provision for the possible curtailment of foreign supplies of coal in case of war? Italy is no less lacking in iron and steel. Neither France nor Germany has copper. Germany cannot be self-sufficing as regards many commodities—not only copper, but wool, leather, cotton—without huge and now impossible expansion. Neither can France or Italy or Austria. The British Isles are self-sufficing only as regards coal and iron. Foodstuffs and raw materials of all kinds must be obtained by the British from overseas—either from foreign countries or from colonies or self-governing dominions. Tariff protection for these materials and their domestic production would mean a crippling of British manufacturing industries. And in

many cases tariff protection could not possibly achieve self-sufficiency.

But this phase of the problem need cause the United States less concern than other nations. We are fortunate in being able to procure within our own borders grain, meat, coal, iron, copper, timber, cotton, wool, leather, in quantities sufficient for our essential needs. True, we do import some important materials in considerable amounts, such as wool and hides. But we are not so dependent on foreign supply as to be in a position of imminent peril or serious suffering, even though the foreign supply should be entirely cut off.

There are some things, however, which may give us occasion for concern, or at least for sober reflection. How far they are absolutely essential, may be an open question. But there are much needed articles for which we were quite dependent on foreign countries before the war. A typical case is that of potash. The potash situation is peculiar in that here also Germany had a monopoly. And the monopoly has been for some time a true monopoly, not merely a geographical concentration of supply. There has been a strong *kartell*, in which the Prussian Government, as mine-owner and producer, has long been a controlling influence. Potash is mined in great quantities from the remarkable German deposits, and has been exported by the Germans to many parts of the world. The United States has been the largest among the foreign purchasers. The Germans think it is indispensable to us—as indispensable to us as our cotton industry is to their textile industry. Potash in exchange for cotton—this was their bargaining cry.

Potash is used for manufacturing purposes, as well as for agriculture. It is important, for instance, for some branches of glass manufacture; for matches and some kinds of explosives; for making soft soaps. As regards these uses no completely satisfactory substitute is available. In other industries, though convenient, it is replaceable by satisfactory substitutes. But for all the manufacturing uses taken together the quantitative demand is not considerable, and probably can be met without serious difficulty from domestic resources. Potash in small amounts can be got from certain brine deposits in Utah and the western part of Nebraska, and in probably larger quantities from the analogous deposit at Searles Lake in California. Some can also be got from

alunite, greensand, wool scourings, distiller's and sugar-beet-factory wastes, as well as from the giant kelp which fringes parts of our western coast. Still other important potential sources of supply are cement dust and dust from blast furnaces. The cost of producing potash from many of these sources will probably be much higher than the pre-war prices of the imported potash; but since no considerable amounts are used for any single manufacturing purpose, higher price of the material would not be of vital consequence.

It is in agriculture that really large supplies are needed, and are needed at low prices. Of the pre-war imports ninety-five per cent went into fertilizers. And the plain fact must be faced that, so far as agricultural needs are concerned, there is nothing now in sight effectively to break the German monopoly. The 226,000 tons of actual potash which were being used for fertilizer purposes before the war cannot be obtained for some time from any visible sources except the German mines, for our total output for 1918 promises to be only about 60,000 tons of actual potash. How far is the country in this regard vitally dependent on a foreign commodity?

Here is the situation. Over large areas of the South and East our agricultural crops are grown with the use of large supplies of fertilizers in which, excepting for temporary periods, potash is an indispensable ingredient. Such is the case in the citrus groves of Florida and Porto Rico, in the potato areas of Maine and the Atlantic seaboard, the tobacco-fields of Kentucky and the Connecticut Valley, truck-garden regions from the Mississippi River to the Atlantic and from the Gulf of Mexico to Canada, and in most of the cotton-fields east of the state of Mississippi. Potash is also needed for some crops in Ohio, Indiana, and other of the Middle-Western states, including many of the sandy potato soils of Wisconsin and Minnesota, as well as the great areas of peat soils in all parts of the country. In these regions its lack means serious embarrassment and need of difficult readjustment. But fortunately American agriculture in general is not so seriously dependent. In the great Central region of the country, potash is only needed here and there for special crops, such as potatoes, onions, and tobacco. The heart of the country is almost completely independent of this particular plant food, even though there are spots where it is needed. As time goes on, and the in-

evitable transition to more intensive cultivation takes place, American agriculture not only in the East and South, but also west of the Alleghenies, if it is to meet the food requirements of a rapidly increasing population, will indeed need enormous supplies of phosphates, increasing supplies of nitrogen, and more or less potash. As the grain crops of the region from the Atlantic to east of the Rocky Mountains are increased by the liberal use of phosphates and more nitrogen, the need of potash will become far greater than at present. But this ultimate need is not a matter for immediate concern. During the period of readjustment after the war, the country as a whole will be no more dependent on artificial fertilizers than it has been in the past.

In the regions which may be called dependent, again, the need of potash could be lessened, but not overcome, by a complete change of agricultural procedure, such as the growing of crops requiring less potash or the substitution of some form of animal husbandry which would insure the return to the soil of much of the limited natural supplies of available potash. Our agricultural methods and crop specializations have been adjusted to the available fertilizer supplies and to the market demand for special crops. Fifty years ago, even thirty years ago, commercial fertilizers, though then they would have been valuable in the East and South, were little used; but the practice of animal husbandry was more common, and extensive crop specialization was practically in its infancy. It is not out of the question that there should be a return in some degree to the agricultural methods of former times: more barn-yard manure, a different rotation of crops, a self-sustaining agriculture. Such a change, however, would entail all the difficulties of transition. Farmers are traditionally conservative, not easily moved from their existing ways, slow to accommodate their methods of cultivation to new conditions. Not only this; farmers would probably find a self-sufficing agriculture somewhat less profitable. It is doubtful, for example, whether a larger net money yield to the producer would be obtained if the cotton-planters of the South, instead of allowing their cotton-seed cake to go to Europe or to other parts of the country, were to use it for their own cattle and were to turn their attention to dairying and meat production to that extent. If the supply of potash, or indeed of other fertilizer, were to be permanently cut off, a readjustment in this direction would be

possible, indeed inevitable; but it would be by no means necessarily profitable.

The confidence which the Germans exhibited and perhaps still exhibit, when talking about their potash, was in keeping with the self-deception which did so much to plunge them into false moves in every direction, economic as well as diplomatic and military. Perhaps their attitude was no more than braggadocio—not so much self-deception as an attempt to deceive others. Their potash is highly acceptable under present agricultural practices; but it is by no means indispensable. Should they shut it off from the United States and other countries, agriculture would gradually adjust itself to new conditions based upon a different cultivation and in part upon the cost of recovering by-product potash from various industries. Meanwhile the search for other underground deposits, already initiated the world over, would be prosecuted the more eagerly, with a strong probability that, as is commonly the case with materials thought to be unique, competitive sources of supply will be discovered. Indeed, similar deposits are already reported to have been found in Russia, Spain, and Abyssinia. Not least, the recovery of Alsace by France opens the one natural source of supply which is known to be comparable to that of Germany. To Germany herself the eventual outcome of a withholding of potash would be of more than doubtful advantage; her strong position of the past would be likely to crumble away. And in any case, she is herself vastly more vulnerable through the cutting off of her supplies of cotton, copper, wool, oils, than any other country as regards her potash.

The sort of economic warfare and would-be strangulation implied in the quest for control of essential materials and "key industries" is to my mind abhorrent. It is not to be thought of as part of a peace that shall really terminate the great war. But if it must be faced as among the possibilities of an inconclusive settlement, the United States is in a stronger position to let it go on than any other country. So far as concerns potash, which illustrates best our own inadequacies and needs, we may be composed. After the war, we shall probably be quite willing to admit it free of duty, as we did before the war. If the Germans should be so foolish as to prohibit its export to us—a most unlikely contingency in the final settlement—we should quietly accept the situation, readjust our own affairs accordingly, and, if there must

be economic war, resort to retaliation more effective than any possible thrust directed against ourselves.

III.—NON-ESSENTIAL ARTICLES. THE TARIFF CONTROVERSY

In the third class, that of non-essentials, belong a number of articles which in pre-war times were imported from Europe, and after the peace probably would continue to be imported under the existing scale of duties,—those of the tariff act of 1913. Such are the more expensive grades of woven textiles,—woolens, cottons, silks, linens; the finer grades of cotton yarns; embroideries and laces; a good deal of porcelain and chinaware, and a few (not many) kinds of glassware; toys from Germany; brushes for toilet use; cotton and leather gloves for women; notions, buttons, and so on through a long list. Many are clearly articles of luxury; others are dispensable conveniences. Some have come to be made in this country during the period of disjointed foreign trade, but not a few have continued to be imported through it all.

Still other things may be put in the same class, which, though perhaps to be deemed essential, need cause no concern because their domestic production can be undertaken or expanded in a short period of time. Laboratory glassware, for example, was formerly obtained almost exclusively by importation, and chiefly from Germany; a large proportion of the imports was admitted free of duty because used by educational establishments. Almost all the forms and shapes are now made within the country, of excellent quality. But they are not sold at as low a price as that of former imports; and it is possible, even probable, that after the war the same disparity in price will remain, and imports will be resumed. Being usually of special shape, made in small lots of any one pattern and with much hand-labor, they are produced more cheaply in countries where wages are lower and where special skill of the needed sort can be had at a moderate rate. On the other hand, the increase of supply in this country took place very quickly under war conditions, and doubtless would take place again under similar conditions in the future. The case is much the same with optical glass and spectacle glass. It is quite feasible to make these within our own borders; but under the normal conditions of foreign trade they are obtained more

cheaply by importation, and for the same fundamental reason,—in the main they are products of handicraft labor. Surgical instruments, too, came mainly from Germany before the war; they too, like munitions of war, have been turned out by domestic producers in large quantities in response to a sudden demand.

Quite a different problem here arises, and quite a different train of reasoning must be followed. The protective controversy pure and simple must be faced and settled. The thoroughgoing protectionist point of view is that the previous importation of any commodities which could have been made at home was always bad, and that the stimulation of domestic production, fortuitous though it may have been, was in itself good. From this point of view, the dependence upon foreign supply had always been a cause of economic loss; the interruption of foreign supply because of the war served only to bring out clearly the economic disadvantage of the situation. And from this point of view, too, the resulting inconvenience and distress were a blessing in disguise. We have been compelled to face squarely a serious situation. The country should be independent and self-sustaining always and in every possible direction, not merely on political and military grounds, but on purely economic grounds. The same trend of opinion will appear in all the countries which have had a protective policy; they will have to consider whether it is to be maintained, extended, or mitigated. Not only in the United States, but in other countries, those protectionists who believe that the substitution of domestic production for imports brings in itself unfailling gain, will seek support for their contentions from the war experiences; and everywhere they will call for higher tariff rates.

And, as I have already intimated when speaking of the military commodities, there will be some confusion of thought between this frank and uncompromising protectionism on the one hand, and political and military preparedness on the other. Many persons will be eager to make their country self-sufficing, independent, safe; they will be averse to foreign supply on grounds partly patriotic, in part sometimes selfish. They will believe it a conclusive proof of national gain that a thing is made at home instead of being brought from abroad; they will hold the foreign purchase specially damaging if made from a present rival, and ominous of disaster if made from a former enemy. If they are

themselves producers of articles affected by foreign competition, they will not be loath to fan international jealousy and commercial strife. On every ground—political, military, economic, sentimental—they will argue that all things should be made at home that can possibly be made at home, and most insistently will urge that every newly stimulated industry should be safeguarded by ample tariff protection.

The free-trader, upon the other hand, will maintain that on strictly economic grounds, and quite apart from any questions of political expediency or international sentiment, the matter should be treated as simply involving a balance between gain and loss. He will argue that the continued importation of a commodity in times of peace is in itself a sign not of loss, but of gain. Imported goods are paid for, not through a losing trade in which we part with so much money, but in exchange for exported goods; and they are obtained presumably on better terms when got in exchange for the exports than if they were produced at home. True, war brings a temporary loss—rude interruption and sudden cessation of supplies, improvised substitutes, higher prices, domestic production under forced and perhaps wasteful conditions. The sudden transfer of labor and capital to new industries takes place with a loss of efficiency and with much waste; the succeeding readjustment, if imports are resumed after the war, again entails loss and waste. Here, and here only, in the wastes of sudden changes, is the offset to the presumable gain from free international trade. In the long run, the country does not lose by free imports, but gains.

An analogy, from the free-trader's point of view, is found in the interruption of traffic on a railway or street railway during a strike—something which is often talked of as industrial warfare. During the interruption of traffic, when the existing facilities are unavailable, there is resort to substitutes less efficient and more expensive. Jitnies and express-wagons replace street-cars. But such losses, possible and real, are more than offset by the continuing benefits which improved methods of transportation bring in ordinary times. No one would propose to dispense with railways or street railways because their services may be interrupted by civil commotion. To be sure, if such commotion had to be reckoned with as part of the ordinary course of events, we might be skeptical of the expediency of relying upon means of

communication likely to become frequently and repeatedly inoperative. And so with regard to war and international trade: our attitude is influenced profoundly by our expectation of the future of war and peace between nations.

Between these extremes there are various shades of opinion. There is the moderate free-trader, who has long shed any notions about natural rights to free trade, and has also discarded the belief that the cure for war can be found in universal free trade. Such a person, too, is likely to admit freely the possibility of gain from protection under some conditions—say, those of protection of young industries. He must be impressed also by the portentous changes now brewing in the international order. The world is different from what he wished and perhaps fancied. Not only is defense more important than opulence, to use Adam Smith's oft-quoted phrase, but opulence itself is threatened by the universal crash. How far we must reshape all our ideals and policies must depend upon the eventual outcome—whether the world is to be readjusted to a permanent peace or to everlasting struggle. But the dream of universal free and peaceful exchange of goods has had a rude shock. The strictly economic arguments for protection usually admitted by the moderate free-trader—admitted by him to apply only under exceptional conditions—are reinforced by the hard facts of international conflict, of national jealousy, insecure interchange of goods, cutthroat competition. Such a person would still resist, from intellectual conviction, the extreme policy of the uncompromising protectionist. But he would hold aloof also from the attitude of the uncompromising Cobdenite.

Still another shade of opinion is that of the "reasonable" protectionists. These maintain a faith in protection, but would not carry it too far. No doubt the term "reasonable" is question-begging. The critic inquires at once what is meant by reasonable, and is apt to get only the equally ambiguous answer that it means, not too much. But at all events a protectionist of this type, though desirous of maintaining some dam against foreign competition, would repudiate the Chinese-wall suggestion. He looks for the eventual development and independence of domestic industries, somewhat after the fashion of the free-trader who admits the young industries argument; yet he would not sacrifice any domestic industry once established, even though it con-

tinued to demand and need a considerable degree of protection indefinitely and forever. He is likely to be in favor of what is called the equalization of the conditions of production. Yet he would not equalize everything, and is disposed to accede to the continuance of imports where they would be kept out only by duties at very high rates.

Which of these principles shall prevail, and which shall dominate the policy of the country during the generation following the war, depends largely on political developments in the United States. What party will win in the elections of 1920? The embers of the controversy on protection, buried for a while during the political truce which was maintained through the war, have been stirred once more. The old arguments have come forward, and the old issue will have to be faced again. There is not likely to be a clear-cut issue between protection and free trade. But there will be one on the *direction* which the country's tariff policy shall take. Shall we move toward higher duties, stringent provision against foreign competition, watchful aid to every industry that has been stimulated by the war, building up of every one not absolutely impracticable because of climatic or physical obstacles? Or shall the trend be toward an acceptance of foreign competition as healthy, in the main beneficial, not to be jealously excluded; toward sharp scrutiny of the claims and profits of protected industries, and vigilant care for the consumer? The march of events must be awaited.

This conclusion,—which states a question, not an answer,—is not a satisfactory outcome of a discussion of reconstruction problems. Yet the plain facts of the situation must be faced. No one can predict the outcome, and no one can now lay down the lines of a policy for tariff reconstruction. A period of controversy, partisan debate, uncertainty in legislation, is inevitable. It is possible, and certainly much to be desired, that some matters not necessarily involved in the general debate may be settled on non-partisan lines; such as the methods of provision for military commodities, and perhaps the tariff for specially situated industries like the manufacture of dyestuffs. But it remains to be seen what will be done even on matters such as these; and on the wider questions of industrial policy, we must simply wait and see what the future will bring.

Further, much must depend upon the kind of peace with which

the great war ends. Is it to be a peace of victory and conquest, or a peace of understanding? A sullen truce, or a whole-hearted settlement? Will it include commercial peace, or give play for continued commercial war? There will be strong pressure for the tightening of national bonds, for moving toward the goal of self-sufficiency, for more rigorous protection. A peace which is in the nature of a truce will make this pressure stronger. A peace of understanding will strengthen the hands of those who welcome the development of foreign trade and look to it, not indeed as the panacea of peace, but as the natural and welcome concomitant of peace.

IV.—THE TARIFF COMMISSION AND THE TARIFF

It does not follow from all this that nothing at all can be done. It may not be possible—in my judgment it is not possible—to lay down now a policy of tariff reconstruction. But we can make preparation for the intelligent carrying out of whatever policy the country shall finally adopt. Precisely this sort of preparation the United States Tariff Commission is undertaking to make.

Hitherto in the consideration of tariff problems trustworthy and accurate information has often been painfully lacking. The committees of Congress have been fairly swamped by conflicting statements, on matters pertinent and not pertinent. They have heard unending testimony on both sides. They have found it beyond the limits of physical possibility to deliberate and discriminate, to separate the wheat from the chaff, to ascertain what were the unquestionable facts, still more to ascertain which facts were significant. Complete information on the contested questions has almost invariably proved difficult to obtain. Sometimes, it must frankly be confessed, information really complete may be quite impossible to obtain. No tariff commission can pretend to be a perfect and inexhaustible encyclopedia of information. And yet it may conceivably perform functions of a somewhat encyclopedic sort. Given time, organization, foresight, and the way can be made ready for prompt and intelligent action. The existing commission has already begun the preparation of a catalogue of tariff information, and has put in charge of it a competent and trained statistician, already long experienced in the

work of the Census Bureau. If time is given, and the work of the commission proves as permanent as Congress has planned it to be, this catalogue will become a handy source of reference for pertinent information on the several phases of the tariff question. The design is to have on hand in it, in compact and simple form, all available data on the growth, development, and location of industries affected by the tariff, on the extent of domestic production and of imports, and on the conditions of competition between domestic and foreign products. To gather information of this sort and to present it in usable form is far from an easy task. Like any far-reaching scheme of investigation, it cannot be carried through suddenly or quickly. But given time, the commission means to have, and to keep continuously up to date, a body of information that will be of important service in the determination of tariff policies. This much can be accomplished and surely is worth accomplishing.

Not a little has been said in discussion of the tariff situation in general and of the Tariff Commission in particular about the desirability of a scientific policy. That term should be used with caution. In the field of political and social inquiry we have not reached that stage of scientific certainty which has been reached in so many branches of natural science. The principles of economics can not be laid down in such terms and with such certainty as to enable us to formulate commercial policies which rest upon settled foundations. But the term "scientific" may be used in a different sense from that in which it implies established principles and indubitable truths. In that other sense, it means simply that we shall proceed with care and method; that we shall be accurate, painstaking, discriminating, shall refrain from guess, rumor, exaggeration, from vague and untested general statements. We proceed in a scientific way if we gather all the information we can, sift it with care, present it clearly, apply it intelligently. In this sense the operations of the Tariff Commission may fairly be expected to have a scientific character and prepare the way for a scientific treatment of tariff problems.

And in this sense we can prepare for tariff reconstruction. The task of the Tariff Commission is not to take tariff questions out of the hands of Congress, or to remove them from the realm of statesmanship. The determination of public policy in this direction, as in every other, must rest in the first instance with the

484 AMERICAN PROBLEMS OF RECONSTRUCTION

legislature and ultimately with the people. Nobody, however expert, can settle, still less dictate, the position which the country shall take on controverted political and industrial questions. All that any administrative or investigating body can do is to contribute toward discriminating and intelligent discussion and action.

INDEX

A

- Accumulation of Foreign Balances in the United States, 332
- Act of Congress Relating to War Risk Insurance, 158
- Acworth, William M., 201
- Adams Act, 106
- Addison, Dr., 18
- Adjustment of Revenue and Expenditure, 444
- Alfassa, Maurice, 10, 19
- Alpine, John R., 161
- America's Leadership in Mineral Production, 60
- American of To-morrow, The, 45; New Internationalism of, 54; New Nationalism of, 53; New Outlook for, 45; Problem of Adjustment for, 46
- American Association for the Advancement of Science, 11, 120
- Federation of Labor, 160, 163, 167
- Metric Association, 111
- Sugar Refining Company, 258
- Anderson, Prof. B. M. Jr., 390
- Appreciated Exchange, Alleged Advantages of, 326
- Army Appropriation Act, 201
- Asquith, Mr., 171
- Austin, O. P., 267
- Austrian Anglo Bank, 309

B

- Babson, Roger W., 390
- Bacon, Raymond F., 105
- Banker's Share in the Rehabilitation of Trade and Industry, 311
- Barbour, Sir David, 390
- Barrett Company, 119
- Basis of our Foreign Trade, 312
- Bethlehem Steel Company, 166
- Bodenkreditanstalt, 309
- Bonded Warehouses, Disadvantages of, 255
- Bonded Warehouses, vs. Free Port, 254

- Brand, Charles J., 217
- Breckenridge, Prof. L. P., 101
- British Association Chambers of Commerce, 111
- British Empire Bank of Industry, 306
- British Empire Producers Organization, 28
- British Labor Party, 166; Program of, 35
- British Re-exports, Our Dependence on, 252
- British Trade Corporation, 307
- Brotherhood of Engineers and Firemen, 164
- Brotherhood of Railway Trainmen, 164
- Bryan, Mr., 31
- Budget Reform, 444
- Bureau of Chemistry, 120
- Corporations, 177, 179, 180
- Fisheries, 120
- Markets, 220
- Mines, 103, 104, 120
- Standards, Activities of, 103

C

- Can Democracy Be Efficient?—The Mechanics of Administration, 447
- Canadian Profit Sharing Plan, 211
- Capital, Export of, 315
- Capital and the State after the War, 165; during the War, 155
- Capital, Labor and the State, 153
- Capital's Position Weakened by the War, 159
- Carnegie Peace Foundation, 15
- Carson, Sir Edward, 28
- Carter, W. S., 164
- Causes of Price Movements, 363
- Changes in Industry and Trade Resulting from the War, 184
- Cities Should Finance Free Ports, 264
- Clapp, Edwin J., 245
- Clayton Act, 153, 157, 181
- Cleveland, Frederick A., 447

- Collection and Dissemination of Authoritative Market Information, 220
- Colorado and Utah, Oil Shale in, 68
- Colver, Hon. William B., 177
- Commerce, International, 42; Must Be Renewed at End of War, 269; between Belligerent Groups before the War, 271-272; between Belligerent Groups Should Not Be Sacrificed, 271
- Commercial Power of Belligerents After the War, 272
- Commercial Requirements Not Changed by War, 270
- Committee of One Hundred, 120
- Comparative Position of U. S. and Foreign Countries in Production of Essentials, 472
- Comté France-Amérique, 307
- Concentration and Control in Industry and Trade, 177; Economic Question of, 179; Historical Survey of, 177; Recent Legislation on, 181
- Conservation of Organized Labor in America, 165
- Conservation of Products During the Course of Transportation, 219
- Cooper, Henry E., 305
- Copenhagen, 25
- Control of Industry, 190
- Cost Finding and Price Fixing, 190
- Council of National Defense, 162, 164
- D**
- Definition and Advantages of Free Ports, 245
- Definition of Reconstruction, 24
- Demand for Power, Increased, 61
- Demand for Steel, Deferred, 137
- Democratization of Industrial Management, 171
- Department of Agriculture, 104, 120, 121; of Agriculture and Commerce, 297-298; of Commerce, 6, 16, 241, 279, 281; of the Interior, 6, 103, 120; of Labor, 6, 16
- Department of National Economy (Fr.), 10
- Dependence of U. S. on Foreign Agricultural and Chemical Commodities, 474
- Dependence on British Exports, Our, 252
- Depreciated Dollar, The, 326; Increases American Exports, 329; Curtails American Imports, 330; Its Value to the Exporter, 327; To Allied Purchases, 327
- Desborough, Lord, 354
- Direct Trade and Short Routes, 238
- Disintegration of Alliances between Financial Groups, 156
- Distribution of Agricultural Products and the Functional Produce Exchanges, 217
- Doak, William N., 164
- Domestic Production, Percentage of Consumption Met by, 64
- Donlin, John, 163
- Drayton, Sir Henry, 210
- Duncan, James, 167
- Duncan, Dr. Robert Kennedy, 105
- Du Pont Company, 119
- Dutch International Trading Bank, 309
- Dyestuffs Industry, Aspects of, 470
- E**
- Earned vs. Unearned Income, 439
- Eastman Kodak Co., 119
- Economic Changes Favoring Free Ports, 261
- Economic Problems During the War and Afterward, 39; Currency, The, 42; Government Control, 40; International Commerce, 42; Railways, The, 41
- Edge, Governor, 464
- Effect of the War upon Technical Research, 99; on Trade, 237
- Effect of War Currency Inflation on After-War Industrial Powers, 274
- Emmons, Professor, 68
- Engineering Efficiency, 75
- Foundation, 109
- Research in Government Bureaus and Departments, 103
- Essential Materials, Estimated Supplies of, 66
- Establishing Government Export Standards, 297
- European Theory of a Perpetual Debt, 429
- Evils of Price Movements, The, 368
- Explanation of the Opposition to the Discussion of Reconstruction, 3
- Explanation of Stable Rates During 1915-1916, 402

Exchange Rates of Three Countries, 335
 Exchange Rates Trade Balances and, 321
 Exchange Value of the Dollar, 311
 Export Combinations, 186
 —Industries in Free Port, 249
 —of Capital, 315
 —Trade in Steel, 141

F

Fair Return, The English Standard of, 209
 Faringdon, Lord, 282
 Farwell, John V., 390
 Federal Board of Vocational Education, 11
 Federal Commission on Industrial Relations, 162; Department of Commerce, 225; Farm Loan Bank, 154; Government Appropriations for Agricultural Research, 106
 Federal Reserve Act, 313, 314
 —Bank System, 154
 —Board, 16, 11
 —Foreign Bank, 339, 341
 Federal Trade Commission, 11, 187, 188
 Federal Trade Commission Act, 154, 181, 186
 Financing Our Foreign Trade, 305
 Fiscal Reconstruction, 427; Application to Present Problem, 430; Adjustment of Revenue in, 444; Debt, The, 428; Taxes in, 434
 Fisher, Professor Irving, 361
 Fixed Standard of the Dollar, 387
 Foreign Balances in the United States, Accumulation of, 332
 Foreign Investments, 345; American Leadership in, 356; Foundation Laid for, 355; Importance of, 345; Aided England, How, 346; Possible Factors of the Future in, 348, 353; Opportunities for, 351; Reasons for Solidarity in, 353
 Foreign Trade, Basis of, 312
 Foreign Trade, Financing Our, 305; Adjustments under Consideration for, 306; Conditions to Be Met During the Transition Period in, 309; International Credit Information, 315; British Example for, 316; German Example for, 317
 Foreign Trade of the United States, Table for 1917, 322

Foreign Trust Policies, 182
 France Latin American Association, 307
 Franklin, Jos. A., 164
 Free Port, Definition and Advantage of, 245; Economic Changes Favoring, 261; Effect on Trade of, 250; Export Industries in, 240; New York Chamber of Commerce on, 260; Rapid Handling of Ships in, 250
 Free Port as an Instrument in World Trade, 245
 Free Port and the Consignment Market in the United States, 254
 Free Trade, Protective Tariff Vs., 478-9
 French Socialists, View of, 35
 French Finances, 352
 Friday, Professor David, 403
 Friedman, Elisha M., 3, 15
 Functions of Future Exchanges, 226
 Function of Produce Exchanges, 224

G

General Chemical Company, 119
 General Electric Company, 119
 General Problem of Distribution of Agricultural Products, 218
 German Cartel and Its Objects, The, 183
 —Customs Union, 248
 —Export Bank, 308
 —Social Democratic Party, Platform of, 35
 —Minister of Reconstruction, Policy of, 18
 Gilbreth, Frank B., 125
 Gilbreth, Lillian Moller, 125
 Gompers, Mr., 160, 161, 164
 Goodrich, Governor, 464
 Government Export Standards, Establishing, 297
 Graduated Taxation, 438
 Grady, Henry, 79
 Grashbrookhafen, 248
 Great Britain, Board of Trade of, 225, 279, 281, 282; Ministry of Labor of, 160; Munitions of War Act in, 160, 164
 Government Aids to Trade, 279
 Government Aids to Trade in Austria, 298; France, 292; Germany, 289; England, 282; Holland, 300; Italy, 298; Japan, 294; Scandinavian Countries, 299; United States, 279

Guilford, Mr., 260
Guyot, Yves, 293

H

Habit of Thrift, The, 398
Hadley, President, 390
Hamburg Free Port, The Equipment of, 248
Hammond, John Hays, 390
Harrison, Narcotics Law, 154
Hatch Act of 1887, 106
Hesse, Bernhard C., 145
Higginson, Henry L., 390
Higher Return of Short Time Loans, 403
Higher Yields of Long-Term Bonds, 399
Hollis, President Ira N., 100, 112
How Foreign Investments Aided England, 346
Howe, Frederick, 246

I

Increase of Government Expenditures, 434
Illinois Federation of Labor, 162
Imperial Commission of Transition Works, 308
Imperial Department of the Interior, 279
Impersonal vs. Personal Taxation, 437
Impersonal Taxation, 440
Importance of Research in Reconstruction, 89
Importance of Waste Elimination, Appreciation of, 126
Improvement in Methods of Retail Distribution, 222
Index Numbers, 362, 382
Industrial and Commercial Power of Belligerents After the War, 272
Industrial Census, 7
—Commission, 177
—Concentration Followed by Nationalized Control, 154
—Stabilization, 173
—Workers of the World, 168
International Acceptance Market, 313
International Aspect of Subsidized Industries, 193
International Brotherhood of Boiler-makers, Iron Ship Builders and Helpers, 164

International Commerce, 167; Renewal of, 269; New Problem for U. S. in, 277; Trade Regulations of, 270; Volume of, 267
International Credit Information, 315
International Geological Congress, 69
International Harvester Company, 179, 180
International Trade, Revival of Transshipment in, 263
Internationalism, The New, 54
Interstate Commerce Commission, 201, 207
Interest Rates, War and the, 391; Elements of, 392; Permanent Changes in, 395; Influences Governing Them After the War, 408
Invention vs. Research, 115
Investments, Foreign, 345

J

Jacoby, Dr. Henry S., 107
Jefferson, Thomas, 45
Johnson, Professor Emory R., 233
Jones, Dean C. R., 101

K

Kahn, Otto H., 11
Kemmerer, Professor E. W., 390, 391
Kennedy, Philip, 256
King, Walter E., 102
Kreditanstalt, 309

L

Labor and the State During the War, 159
Labor Board, 12
Labor's New Part in Adjusting Disputes, 160
Labor's Part in War Administration, 163
Lack of Standard Due to Lack of Competition, 447
Land Tax, 440
Landay, Adolphe, 349
Lane, Secretary, 61, 79
Law, Mr. Bonar, 171
L'Exportateur Français, 307
Legal Aspects of Consolidation, 178
Leith, Professor, 68
Lessons of the War and European Reconstruction to America, 9
Lever Act, 190
Licensing Agencies of Distribution, 221

Liverpool Cotton Association, 225
 London Consignment Market, 251
 Lowden, Governor, 464
 Lundgren, Professor, 68

M

Man of the Future, The, 54
 March, E. P., 162
 Market, London Consignment, 251
 Market Inspection of Perishable Products, 221
 Market, Price and Extent of, 73
 Master Car Builders' Association, 219
 McAdoo, Director General, 201, 210
 McNair, President F. W., 100
 Mechanics of Administration, The, 447; The Paramount Question in, 462; Principles of, 460
 Mechanics of Democratic Control over Leadership, 455
 Mechanics of National Efficiency, 450
 Meeker, Royal, 390
 Mellon, Andrew William, 105
 Mellon, Richard Beattie, 105
 Mellon Institute, The, 104
 Memphis Cotton Exchange, 224
 Meyer, Eugene, Jr., 11, 20
 Mineral Reserves, Our, 59; Extent of, 66; America's Future Strength in, 66; Factors Promoting Full Utilization of, 73; Equitable Distribution of Net Proceeds from, 77; After-War Needs in, 70
 Minerals the Foundation of the Nation's Industry, 59
 Mineral Industry, War-Time Test of the, 62
 —Readjustment of the, 70
 Minnesota Rate Decision, 154
 Mitchell, Prof. Wesley Clair, 390
 Modification of Practices on Future Exchanges, 228
 Morris, Ray, 199
 Moss, Sanford A., 99, 100
 Munroe, J. P., 91
 Multiple Standard of Commodities, 376

N

National Aniline and Chemical Company, 119
 National Union for the Exportation of French Products and the Importation of Raw Materials, 307
 National Association of Tanners, 119
 —Canners Association, 119

National Defense Act, 110
 —Economic Policies, 150
 —Foreign Trade Council, 15, 140
 —Labor Union, 168
 —Policy, What Should Be Our, 411
 —Productiveness and the War Debt, 170
 —Research Council, 109, 120, 151
 —Shipping Policy, Need for, 240
 —Team Work, 146
 National Thrift, 415; National Aspect of, 422; Personal Aspect of, 421; Its Appeal to the Consumer, 419; Its Social Significance, 416; Its Psychological Value, 422
 National War Labor Board, 162, 163
 Nationalism, The New, 53
 Newlands, Senator, 390
 Newlands Bill, The, 108
 New Markets in War Time, 205
 New Trade Regulations, Regarding, 270
 New Sources of Revenue, 435
 New Uses for Steel After the War, 140
 New York Cotton Exchange, 225
 North America, 354
 Noyes, Alexander D., 39

O

Outlines of a Domestic Policy, 94
 Output of Metals, Increased, 63
 —of Steel, 100 per cent., 139
 Our Mineral Reserves, 59
 Outstanding Deficiencies, 65
 Overseas Banking Corporation, 339
 Owen, Robert L., 321, 390

P

Paint Manufacturers Association of the United States, 119
 Patchin, Mr., 266
 Peabody, George Foster, 390
 Perkins, George W., 45
 Perrin, John, 390
 Persons, Prof. Warren M., 390
 Phillips, Professor W. Allison, 35
 Pier Delays, Customs Cause, 260
 Potter, Dean, A. A., 99
 Preparation for Tariff Reconstruction, 482
 Prescott, Major Samuel C., 102
 Present Incentive to Save, Individual, 424
 Present Incentive to Save, National, 425

- Price Fluctuations Due to Money Conditions, 364
 Price Movements, Facts Concerning Causes of, 363
 Principles of Reconstruction in Europe, The, 15
 Private Enterprise and Government Function, 242
 Problems of Reconstruction in the United States, 3; Immediate, 6; Long Range, 8.
 Problem, The Shipping, 233
 Producers, More Extended Organization of, 218
 Produce Exchanges, Types of, 224
 Production of Essentials, Comparative Position of U. S. and Foreign Countries in, 472
 Protective Tariff Controversy, 477
 Protective Tariff vs. Free Trade, 478-9
 Purpose of Reconstruction in Europe, 35

R

- Railroad Problem, The, 199; Assumption of Government Ownership, 201; Difficulties of Government Ownership, 202; Concentration of Authority and Responsibility in, 204; Measure of Fair Return, 208; Summary of, 215; Terms of Resumption of Private Ownership, 202
 Railway Contract Act, 41
 Rathenau, Walter, 28
 Readjustment of Industries, 135; Attitude of the Public Toward, 146; Conversion of Plants in, 139; Effect of New Public View Point on, 147; New Outlook for, 143; Our Real Object in, 148; After the War, 150
 Readjustment of the Chemical Industry, 145; Steel Industry, 150; Mineral Industry, 70
 Reconstruction, Fiscal, 427
 Reconstruction in the United States, The Problems of, 3
 Reconstruction in Europe, 5, 15, 25
 Reconstruction, Literature of, 15
 Reconstruction Opportunities, 351
 Reconstruction Policy, Aims of, 3
 Reconstruction Policy, Determinants of, 191
 Relation of Labor and Capital, 48
 Relation of Research to Industry, 118

- Relation of Shipping to our Post-Bellum Commerce, 236
 Relation of State and Federal Taxation 444
 Reis, Mr., 255
 Repayment, American Theory of, 430; Reason for Rapid, 431, 432
 Research, A Triumph of, 93
 —and the Engineering Profession, 108
 —in Japan, 97
 —Industrial and Scientific, 288
 Restraint, the Lack of, 29
 Results of Advances in Rates of Interest, 410
 Results of our Neglect of Research, 116
 Revenue and Expenditure, Adjustment of, 444
 Rice, Mr. Calvin, 114
 Richards, Dean C. R., 100
 Rogers, Allen, 115
 Rogers, Thorold, 213

S

- Sandtorhafen, 248
 San Francisco Wholesale Dairy Produce Exchange, 224
 Schwab, Charles M., 29, 135, 166
 Scientific Management, 125; as an Agent of Democracy, 132; as a Reconstructive Agency, 130; Changes in, 126; Place in World Development of, 133
 Scott, W. R., 16, 21
 Seligman, Professor Edwin R. A., 427
 Sherman, General, 70
 Sherman Law, 154, 177, 180, 190
 Shipping Problem, The, 233; Dual Nature of, 233; Recent History of, 234
 Sisson, Francis H., 345
 Skinner, C. E., 101
 Smith, A. H., 201
 Smith, George Otis, 59
 Snow, Chauncey Dewey, 279
 South America, 354
 Stabilizing the Dollar in Purchasing Power, 361; Summary of Plan for, 384; After War Significance of, 388
 Stabilizing Foreign Exchange, 321
 Practical Aspect of, 326; Need for, 336; America's Interest in, 331; Allies' Interest in, 327; United States' Interest in, 329
 Standard of Living, 418

Standardization of Grades and Containers, 218
 Standard Oil Company, 187
 State of Hamburg, 248
 Statistical Table of Mineral Output of United States for 1913, 60-61
 Strategic Value of Industrial Independence, 60
 Strauss, John F., 259
 Surgeon-General's Office, 6
 Swasey, Ambrose, 109
 Shipbuilding Labor Adjustment Board, 164, 169

T

Table of Estimated Capital Increases of the Country, 1913-1917, 403
 —of Foreign Trade of the United States for 1917, 322
 —of Interest Rates in New York City by Quarterly Periods, 1914-1918, 404
 Table of Net Interest Yields, of West Shore Fours of 2361, 400
 —of Total Oil Remaining in Ground in United States and Alaska Jan. 1, 1917, 67
 —Showing Net Yield of Twenty Railroad Bonds as of Date March 1, 1914-1918, 401
 Tables of Steel Production, 136
 Taft, Mr., 12, 162
 Tariff Commission, New York Hearing of, 255, 259, 260, 266; Philadelphia Hearing of, 257
 Tariff Problems After the War, 465
 Tariff Problems on Military Articles, 467; Essential Articles, 472; Non-essential Articles, 476
 Tariff Reconstruction, Preparation for, 482
 Taussig, F. W., 465
 Tax on Business, 442
 Tax on Capital, 441
 Taxes, 434
 Technical Research, General Aspects of, 89
 Technical Research in Engineering and Allied Subjects, 99
 —in Chemical Industries, 115
 —in the United States before the War, 102
 —in Colleges and Universities, 105
 —after the War, 111

Technical Research, Temporary Changes in, Resulting from the War 92,
 —Readjustments Necessary in, 93
 —Recent Progress in, 120
 Theory of Anti-Trust Legislation, 180
 Thrift and Reconstruction Needs, 417
 Tools of Democracy, The, 12
 Trade Balances and Exchange Rates, 321
 Trade, Government Aids to, 279
 Trade Promotion, Radical Departure in, 285
 Trade Promotion Service, Rounding out the, 296
 Transfer of Property, Unjust, 368
 Transshipment in International Trade, Revival of, 263
 Turneure, Dean F. E., 107
 Types of Savings Institutions, 423

U

Ullman, Joseph, 262
 United Mine Workers of America, 164
 Universal Training for Service, 52
 Unjust Transfer of Property, 368
 United States Naval Consulting Board, 109
 United States in Reserves, World Position, 69
 United States Rubber Company, 119
 United States Shipping Board, 11, 241
 United States Tariff Commission, 11
 United States Steel Corporation, 119, 179
 Utilization of Changes, 127
 Utilization of Resources, 73

V

Vanderlip, Mr. Frank A., 31, 415, 390

W

Wages and Prices, 213
 Walker, J. H., 162
 Walsh, F. P., 162
 War and the Interest Rates, The, 391
 War Adjustments, 61
 War Boards and Reconstruction, 287
 War Department, Building Program, 161
 War Finance Corporation, 413
 War Industries Board, 138, 139, 163, 189
 War Labor Conference Board, 162

- War-Time Channels of Saving, 423
War-Time Test of the Mineral Industry, 62
Washington Federation of Labor, 162
Waste Elimination, Appreciation of Importance of, 126
Webb Act, 193
Webb, Sidney, 17
Webb Export Law, 142
Webb-Pomerene Act, 280
Wehle, Louis B., 153
Whetham, Dampier, 10
White, John P., 164
Whitney, Willis R., 89
Whitney, Dr. W. R., 114
Why America Must Finance Europe, 353
World Manufacturers, Belligerents are the, 269
World Trade Coming Here, 262
Workmen's and Soldiers' Council of Russia, 167

AMERICAN PROBLEMS OF RECONSTRUCTION

*A National Symposium on the Economic
and Financial Aspects*

EDITED BY
ELISHA M. FRIEDMAN

WITH A FOREWORD
BY FRANKLIN K. LANE
SECRETARY OF THE INTERIOR



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THE SPIRIT OF THE GREAT REPUBLIC

*“Yet have my thoughts for thee been vigilant,
Bound to thy service with unceasing care.”*

—Wordsworth.

NOTE TO THE SECOND EDITION

The article on Tariff Problems, by Commissioner F. W. Taussig, which was omitted from the first edition, is now included at the end of this volume.

Owing to the rapid sale of this volume, there was not sufficient time to arrange the chapters in this edition.

PREFACE

An apology is indeed necessary for adding another volume to the flood of publications on the war. English and German economists have built up an extensive literature on the after-war problems, whereas America has produced not a single volume on the subject. An American work of this character, therefore, seemed likely to the editor to fill a pressing need. It was hoped that one more qualified for the task than he would carry out the plan.

The scheme of treatment on which this book is based was presented by the editor last December both to Prof. Leo S. Rowe, president of the American Academy of Political and Social Science, and to Prof. Irving Fisher, president of the American Economic Association. The board of neither association could at that time promptly undertake the study of the project. Both gentlemen, however, advised the editor to develop the idea himself and have been of aid in its execution. The result, in part, is this volume.

The contributors were requested to treat their subjects with the following points in view:

- (a) What are the temporary effects of the war?
- (b) How may readjustment to peace conditions be facilitated?
- (c) What are the permanent effects of the war?
- (d) What changes in our national life must result therefrom?
- (e) What should be our national economic policy?

A chapter on the tariff, by Commissioner F. W. Taussig, which was part of the plan, had to be omitted from this edition owing to his other pressing duties.

Wide as is the scope of the work, it includes only the financial and economic aspects of the question in this country. Other phases of the reconstruction problem may be taken up in a later volume if circumstances permit. The European programs of reconstruction, in so far as they furnish a guide to the treatment of the American problem, will be considered by the editor in a volume to appear shortly.

The prime purpose of the venture is to stimulate thought in this country on the subject of reconstruction, which is the question of the hour in all of Europe. A democracy is controlled by the will of the people. Intelligent control demands an enlightened public. The task of education rests with the economists of the country, to whom, it is hoped, this volume will be suggestive. If the book accomplishes this end, thanks will be due chiefly to Mr. Eugene Meyer, Jr., whose aid and advice constituted an underwriting of the plan. In the fall of 1916 he urged the study of the subject upon the editor, then statistician to Eugene Meyer, Jr., & Company, and he has continued his interest in the subject during his war work in Washington.

The encouragement of Mr. Vanderlip and Professor Fisher, who early in January saw the possibilities of usefulness of a work of this kind and who were the first to consent to participate in it, insured the success of the undertaking. Thanks are due to Prof. Leo S. Rowe, now Assistant Secretary of the Treasury; Prof. Jeremiah W. Jenks, of New York University; Prof. Emory R. Johnson, now with the War Trade Board; Hon. Paul M. Warburg, of the Federal Reserve Board; Dean E. F. Gay, now with the United States Shipping Board; Dean R. A. Pearson, now Assistant Secretary of Agriculture; and Dr. Francis Walker, now with the Federal Trade Commission, for their kind suggestions from time to time.

Credit is also due to Dr. Leo Wolman, of Johns Hopkins University, and Dr. Ruth Wallerstein, of the Bureau of Intelligence of the War Trade Board, who were kind enough painstakingly to read the manuscript and aid in the editing; and to Mr. Bernard H. Lane, of the United States Geological Survey, who has made many helpful suggestions during the reading of the proof. The special interest taken by Mr. John Macrae of E. P. Dutton & Co., from the inception of the idea in November, 1917, through the process of manufacture, was greatly appreciated by the editor.

THE EDITOR.

Cosmos Club, Washington, D. C.
May, 1918.

CONTENTS

	PAGE
FOREWORD, BY FRANKLIN K. LANE, SECRETARY OF THE INTERIOR	XXV
PART I. A PERSPECTIVE OF THE PROBLEM	
I. THE PROBLEM OF RECONSTRUCTION IN THE UNITED STATES, BY ELISHA M. FRIEDMAN	3
II. PRINCIPLES OF RECONSTRUCTION IN EUROPE, BY ELISHA M. FRIEDMAN	15
III. ECONOMIC PROBLEMS DURING THE WAR AND AFTERWARD, BY ALEXANDER D. NOYES	39
IV. THE AMERICAN OF TO-MORROW, BY GEORGE W. PERKINS	45
PART II. EFFICIENCY IN PRODUCTION	
V. OUR MINERAL RESERVES, BY GEORGE OTIS SMITH	59
VI. TECHNICAL RESEARCH:	
(a) GENERAL ASPECTS, BY WILLIS R. WHIT- NEY	89
(b) ENGINEERING AND ALLIED SUBJECTS, BY A. A. POTTER	99
(c) CHEMICAL INDUSTRIES, BY ALLEN ROGERS	115
VII. SCIENTIFIC MANAGEMENT, BY FRANK B. GIL- BRETH AND LILLIAN MOLLER GILBRETH	125
VIII. READJUSTMENT OF INDUSTRIES:	
(a) STEEL, BY CHARLES M. SCHWAB	135
(b) CHEMICALS, BY BERNHARD C. HESSE	145
IX. CAPITAL, LABOR, AND THE STATE, BY LOUIS B. WEHLE	153
X. CONCENTRATION AND CONTROL IN INDUSTRY AND TRADE, BY WILLIAM B. COLVER	177
PART III. ADJUSTMENTS IN TRADE AND FINANCE	
XI. THE RAILROAD PROBLEM, BY RAY MORRIS	199

XII.	THE DISTRIBUTION OF AGRICULTURAL PRODUCTS AND THE FUNCTION OF PRODUCE EXCHANGES, BY CHARLES J. BRAND	217
XIII.	THE SHIPPING PROBLEM, BY EMORY R. JOHNSON	233
XIV.	THE FREE PORT AS AN INSTRUMENT OF WORLD TRADE, BY EDWIN J. CLAPP	245
XV.	INTERNATIONAL COMMERCE, BY O. P. AUSTIN	267
XVI. (a)	TARIFF PROBLEMS, BY F. W. TAUSSIG	465
(b)	GOVERNMENT AIDS TO TRADE, BY CHAUNCEY DEPEW SNOW	279
XVII.	FINANCING OUR FOREIGN TRADE, BY HENRY E. COOPER	305
XVIII.	STABILIZING FOREIGN EXCHANGE, BY ROBERT L. OWEN	321
XIX.	FOREIGN INVESTMENTS, BY FRANCIS H. SISSON	345

PART IV. PROGRAMS, MONETARY AND FISCAL

XX.	STABILIZING THE DOLLAR IN PURCHASING POWER, BY IRVING FISHER	361
XXI.	THE WAR AND INTEREST RATES, BY E. W. KEM- MERER	391
XXII.	NATIONAL THRIFT, BY FRANK A. VANDERLIP	415
XXIII.	FISCAL RECONSTRUCTION, BY EDWIN R. A. SELIG- MAN	427
XXIV.	CAN DEMOCRACY BE EFFICIENT?—THE MECHAN- ICS OF ADMINISTRATION, BY FREDERICK A. CLEVELAND	447

ILLUSTRATIONS

MAP OF THE PORT OF HAMBURG	247
VIEW OF THE PORT OF HAMBURG	265

ANALYTICAL TABLE OF CONTENTS

PART I. A PERSPECTIVE OF THE PROBLEM

	PAGE
THE PROBLEM OF RECONSTRUCTION IN THE UNITED STATES, BY ELISHA M. FRIEDMAN . . .	3
An Explanation of the Opposition to Discussion of Reconstruction	3
The Present Need for Taking up a Consideration of Reconstruction	4
A Tentative Plan	5
Scope of the Immediate Problem of Transition	6
Scope of the Long Range or Reconstruction Problem	8
The Lessons of the War and of European Reconstruction to America	9
A. A General Economic Staff	9
B. An Uninterrupted National Economic Policy	11
C. The Tools of Democracy	12
PRINCIPLES OF RECONSTRUCTION IN EUROPE, BY ELISHA M. FRIEDMAN	15
Literature of Reconstruction	15
Justification for the Study of the Problem	16
Future Conditions to be Faced	22
Some Definitions	24
The Problem	25
The Nature of the Present Period	25
The Dangers of the Period	29
A. The Lack of Restraint	29
B. National Hysteria	30
C. National Indifference	31
D. Difficulty of Arousing the National Consciousness	31
E. Production of Fragmentary and Impractical Efforts	32
The Aim of a Reconstruction Policy	33
ECONOMIC PROBLEMS DURING THE WAR AND AFTERWARD, BY ALEXANDER D. NOYES	39
Historic Precedents	39
Profound Changes of the Period	39
Government Control	40

The Railways	41
The Currency	42
International Commerce	42
Disposition of Interallied Advances	42
A Moot Question	43
IV. THE AMERICAN OF TO-MORROW, BY GEORGE W. PERKINS	45
Profound Changes and a New Outlook	45
Recollections of the Passing Order	46
A Problem of Adjustment	46
Powers of the Individual, Enlarged by Science, Need Regulation	47
Relation of Labor and Capital	48
Wanted—A New Heart and a New Spirit	49
Past and Future—A Contrast	50
Basis of Belief in the New Order	51
Universal Training for Service	52
Centralization and Responsibility	52
The New Nationalism	53
The New Internationalism	54
The Man of the Future	54
PART II. EFFICIENCY IN PRODUCTION	
V. OUR MINERAL RESERVES, BY GEORGE OTIS SMITH	59
Introduction	59
Minerals the Foundation of the Nation's Industry	59
Strategic Value of Industrial Independence	60
America's Leadership in Mineral Production	60
War Adjustments	61
The New Demand for Raw Material of Domestic Origin	61
Increased Demand for Power	61
War-time Test of the Mineral Industry	62
Increased Output of Metals	63
Present Degree of Independence	64
Substitution of Domestic Products for Imports	64
Percentage of Consumption Met by Domestic Production	64
Outstanding Deficiencies	65
Extent of Reserves	66
America's Future Strength	66
Distribution of Resources	66
Estimated Supplies of Essential Minerals	66

ANALYTICAL TABLE OF CONTENTS

CHAPTER		xiii PAGE
	World Position of the United States in Reserves	69
	After-War Needs	70
	Vision Necessary Even To-day	70
	Readjustment of Mineral Industry	70
	Expansion Justified	71
	Utilization of Resources	73
	Factors Promoting Full Utilization	73
	Price and Extent of Market	73
	Engineering Efficiency	75
	Certainty of Tenure	76
	Equitable Distribution of Net Proceeds	77
	Government Coöperation	78
	Full Utilization the Ideal	79
	Public Benefit Through Use	79
	Choice of Sources of Material	79
	Economic Distribution	80
	Balancing of Present and Future Values	82
	Partnership of Nation and Citizen	83
	Résumé	86
VI.	(A) TECHNICAL RESEARCH—GENERAL ASPECTS, BY WILLIS R. WHITNEY	89
	The Importance of Research in Reconstruction	89
	The Unconquered World of Matter	90
	Does Knowledge of Matter Make for Materialism?	91
	The Temporary Changes Resulting from the War	92
	The Necessary Readjustments	93
	A Triumph of Research	93
	A Policy to Follow	95
	(B) TECHNICAL RESEARCH—ENGINEERING AND ALLIED SUBJECTS, BY A. A. POTTER	99
	Effect of the War upon Technical Research	99
	Technical Research in the United States before the War	102
	Engineering Research in Government Bureaus and Departments	103
	The Mellon Institute	104
	Technical Research in Colleges and Universities	105
	Research in the Engineering Profession	108
	Urgent Investigations during the War	109
	Technical Research after the War	111

ANALYTICAL TABLE OF CONTENTS

(C) TECHNICAL RESEARCH—CHEMICAL IN-	
DUSTRIES, BY ALLEN ROGERS	115
Invention vs. Research	115
The Results of Our Neglect of Research	116
The Relation of Research to Industry	118
Some Recent Progress	120
A National Research Laboratory	121

VII. SCIENTIFIC MANAGEMENT, BY FRANK B. GIL-	
BRETH AND LILLIAN MOLLER GILBRETH	125
Function of Scientific Management	125
Its Claim as a Reconstruction Agency	125
Characteristics of Temporary Changes	126
Appreciation of Importance of Waste Elimination	126
New Supply of Workers	127
Growth in Willingness to Coöperate	127
Appreciation of Need for Education	127
Utilization of Changes	127
Permanent Changes Caused by War	128
A Policy Needed	129
Scientific Management as a Reconstructive Agency	130
Necessity of Using it at Once	130
"The One Best Way" as a Constructive Force	131
A Problem of Education	132
Scientific Management as an Agent of Democracy	132
Its Place in the World Development	133
Its Call to the Worker	134

VIII. (A) READJUSTMENT OF INDUSTRIES: STEEL,	
BY CHARLES M. SCHWAB	135
Introduction	135
No Abnormal Expansion of Capacity	136
Demand for Steel Deferred	137
100 Per Cent on Government Work	139
The Conversion of Plants	139
New Uses for Steel after the War	140
Export Trade in Steel	141
Research	142
The New Outlook	143

(B) READJUSTMENT OF INDUSTRIES: CHEM-	
ICALS, BY BERNARD C. HESSE	145
The Attitude of the Public	146
National Team Work	146
The Effect of this New Public Viewpoint	147

ANALYTICAL TABLE OF CONTENTS

CHAPTER		XV PAGE
	Our Increased Chemical Industry	147
	Permanent Changes Resulting from the War	148
	Our Real Object	148
	Temporary Conditions Resulting from the War	149
	Readjustment after the War	150
	National Economic Policies	150
IX.	CAPITAL, LABOR AND THE STATE, BY LOUIS B. WEHLE	153
	Capital and the State before the War	153
	Industrial Concentration Followed by Nationalized Control	154
	Capital and the State during the War	155
	Disintegration of Alliances between Financial Groups	156
	Capital's Position Weakened by the War	159
	Labor and the State during the War	156
	Labor's New Part in Adjusting Disputes	160
	Labor's Part in War Administration	163
	Capital, Labor, and the State after the War	165
	Conservatism of Organized Labor in America	165
	National Productiveness and the War Debt	170
	Democratization of Industrial Management and the New Responsibilities of Labor	171
	Industrial Stabilization	173
	Has America a New Opportunity?	175
X.	CONCENTRATION AND CONTROL IN INDUS- TRY AND TRADE, BY WILLIAM B. COLVER	177
	Historical Survey	177
	Legal Aspects of Consolidation	178
	The Economic Question	179
	The Theory of Anti-trust Legislation	180
	Recent Legislation	181
	Foreign Trust Policies	182
	The German Cartel and Its Objects	183
	Changes Resulting from the War	184
	Export Combinations	186
	Cost Finding and Price Fixing	187
	Control of Industry	190
	A Reconstruction Policy and Its Determinants	191
	The International Aspect of Subsidized Industries	193
	Outlines of a Domestic Policy	194

PART III. ADJUSTMENTS IN TRADE AND FINANCE

CHAPTER	PAGE
XI. THE RAILROAD PROBLEM, BY RAY MORRIS	199
Recent Railroad History	199
The Assumption of Railroad Operation by the Government	201
The Need of Studying Terms of Resumption of Private Operation	202
Difficulties of Government Ownership	202
Some Problems Calling for Treatment	204
Concentration of Authority and Responsibility	204
The English Standard of a Fair Return	209
The Canadian Profit-Sharing Plan	211
Wages and Prices	213
Summary	215
XII. THE DISTRIBUTION OF AGRICULTURAL PRODUCTS AND THE FUNCTION OF PRODUCE EXCHANGES, BY CHARLES J. BRAND	217
Introduction	217
The General Problem of Distribution of Agricultural Products	218
1. More Extended Organization of Producers	218
2. Standardization of Grades and Containers	218
3. Conservation of Products during the Course of Transportation and in Storage	219
4. Collection and Dissemination of Authoritative Market Information	220
5. Market Inspection of Perishable Products	221
6. Licensing the Agencies of Distribution	221
7. Improvement in Methods of Retail Distribution	222
Summary	223
The Function of Produce Exchanges	224
Types	224
Functions of Future Exchanges	226
The Origin and Execution of a Future Contract for Hedging Purposes	227
Modification of Practices on Future Exchanges	228
Limitations of Fluctuation to a Certain Number of Cents per Day	229
Changes that May Have Permanent Value, and Certain Other Suggestions	229

XIII. THE SHIPPING PROBLEM, BY EMORY R. JOHNSON	233
The Dual Nature of the Shipping Problem . . .	233
Some Recent History	234
A Seafaring Bent	235
The Relation of Shipping to Our Post Bellum Commerce	236
The Effect of the War on Trade	237
Direct Trade and Short Routes	238
Interest in Maritime Affairs Needed	239
Wanted—A National Shipping Policy	240
Private Encouragement of Shipping	241
Private Enterprise and Government Function	242
XIV. THE FREE PORT AS AN INSTRUMENT OF WORLD TRADE, BY EDWIN J. CLAPP	245
Free Port Is Not Free Trade	245
Definition and Advantages of Free Ports	245
A Free Port Described	246
Equipment of Hamburg Free Port	248
Reëxportation Facilitated	249
Export Industries in Free Port	249
Rapid Handling of Ships	250
The Effect on Trade	250
The British Problem	251
London Consignment Market	251
Advantages to British Trade and Industry	252
Our Dependence on British Reëxports	252
Our Small Reëxports	253
The Free Port and the Consignment Market in the United States	254
Free Port vs. Bonded Warehouse	254
Disadvantages of Bonded Warehouses	255
The Free Port Warehouse	256
Free Port District for Industries	257
Difficulties of Drawback System	258
Free Port and Better Handling of Ships	259
Customs Cause Pier Delays	260
New York Chamber of Commerce on Free Ports	260
Economic Changes Favoring Free Ports	261
World Trade Already Coming Here	262
Revival of Transshipment in International Trade	263
Cities Should Finance Free Ports	264
Men, Not Mechanism, Must Win with Foreign Trade	264

XV.	INTERNATIONAL COMMERCE, BY O. P. AUSTIN	267
	Twenty Billion Dollars' Worth of Merchandise	
	Annually Exchanged Among Nations	267
	The Warring Nations are the Great Trading Nations	268
	The Belligerents are the World Manufacturers	269
	Commerce Must be Renewed at End of War	269
	Man's Commercial Requirements not Changed by	
	War	270
	Regarding New Trade Regulations	270
	International Hostilities Merely Suspend Inter-	
	national Trade	270
	Commerce Between Belligerent Groups Should not	
	be Sacrificed	271
	Industrial and Commercial Power of Belligerents	
	after the War	272
	Effect of War Currency Inflation on After-war In-	
	dustrial Powers	274
	Other Changes Abroad	276
	Summary	276
	The Problem for the United States	277
XVI.	(A) TARIFF PROBLEMS, BY F. W. TAUSSIG	465
	I. Military Articles	467
	II. Essential Articles	472
	III. Non-Essential Articles. The Tariff Controversy	477
	IV. The Tariff Commission and the Tariff	482
	(B) GOVERNMENT AIDS TO TRADE, BY	
	CHAUNCEY DEPEW SNOW	279
	Various Kinds of Government Aid	279
	Importance of Legislative Department	280
	Diplomatic Aid—External Affairs	280
	After-War Need of Better Information Service	281
	Winning the War Important Trade Promotion	281
	Foreign Experience	282
	England	282
	Germany	289
	France	292
	Japan	294
	Austria, Italy, and Other European Countries	298
	Yearbooks, Expositions, and Other Forms of Trade	
	Promotion in Other Countries	301
	Our Needs for the Future	302

ANALYTICAL TABLE OF CONTENTS

xix
PAGE

CHAPTER

XVII.	FINANCING OUR FOREIGN TRADE, BY	
	HENRY E. COOPER	305
	Introduction	305
	Changes Brought by the War	305
	Adjustments under Consideration	306
	In England	306
	In France	307
	In Germany	308
	In Austria	309
	In Neutral Countries	309
	Conditions to be Met during Transition Period	309
	Exchange Value of the Dollar	311
	The Banker's Share in the Rehabilitation of Trade and Industry	311
	Basis of Our Foreign Trade	312
	International Acceptance Market	313
	International Credit Information	315
	Export of Capital	315
	The British Example	316
	The German Example	317
	Conclusions	319
XVIII.	STABILIZING FOREIGN EXCHANGE, BY ROB- ERT L. OWEN	321
	Facts	321
	Introduction	321
	Trade Balances and Exchange Rates	321
	The Evils of the Present Situation	324
	Instability	324
	The Harm to the Community	324
	The Loss to the Individual	325
	The Alleged Advantages of an Appreciated Ex- change	326
	The Practical Aspect	326
	The Point of View of the Allies' Interest	327
	The Point of View of the Interest of the United States	329
	Underlying Causes of the Present Situation	333
	Normal Correction of Exchange Involving Two Countries	333
	Exchange Rates of Three Countries—Arbitrage	334
	The Present Abnormal Situation	334
	Remedy	336
	Need for the Remedy	336

ANALYTICAL TABLE OF CONTENTS

Immediate Remedy—Credits	336
The Permanent Remedy—Federal Reserve Foreign Bank	338
The Organization and Fundamentals of the Federal Reserve Foreign Bank	339
The Purposes and Advantages of the Federal Reserve Foreign Bank	341
Conclusion	341
XIX. FOREIGN INVESTMENTS, BY FRANCIS H. SISSON	345
The Importance of Foreign Investments	345
How Foreign Investments Aided England	346
We Have Become Bond Buyers	348
Possible Factors of the Future	348
Reconstruction Opportunities	351
France Will Recover Rapidly	351
French Finances Sound	352
Reasons for Solidarity	353
Why America Must Finance Europe	353
North America	354
South America	354
Foundation for Foreign Financing Laid	355
American Leadership	356

PART IV. PROGRAMS, MONETARY AND FISCAL

XX. STABILIZING THE DOLLAR IN PURCHAS-

ING POWER, BY IRVING FISHER	361
The Facts as to Price Movements	361
General Nature of the Question	361
Index Numbers	362
The Causes of Price Movements	363
Some Erroneous Explanations	363
Price Fluctuations Due to Money Conditions	364
The Gold Dollar Fixed in Weight but Not in Purchasing Power	365
The Evils of Price Movements	368
Unjust Transfer of Property	368
Cheating of Savings Depositors and Bondholders	369
Suffering of Salaried Classes is Cause of Unrest	370
Fluctuations Produce Instability and Crises	371
The Remedy	372
Fix the Purchasing Power of a Dollar	373

ANALYTICAL TABLE OF CONTENTS

CHAPTER

xxi

PAGE

Any Single Commodity is too Variable a Standard	375
The Multiple Standard of Commodities	376
Gold a Medium of Exchange Used with a Com-	
modity Standard of Value	377
Vary the Weight of the Dollar	378
Use Paper for Currency and Abolish Gold Coins .	379
Periodic Variation of Weight Based on Index Num-	
ber	382
Conclusion	384
Summary of Plan	384
The Essential Point	385
A Fixed Standard Would Prevent Involuntary Theft	387
After-war Significance of the Plan	388
If We Miss the Chance	389

XXI. THE WAR AND INTEREST RATES, BY E. W.

KEMMERER	391
The Nature of Interest and Its Importance	391
The Element of the Market Rate of Interest	392
Pure Interest	392
Administrative Expense	392
Insurance	393
Depreciation or Appreciation in Purchasing Power	393
The Method of Treatment	394
Permanent Changes Being Brought on by the War	395
The Increasing Use of Bonds of Small Denomina-	
tions Leads to Lower Rates	395
The Large Proportion of Government Bonds	396
Increased Safety	397
The Habit of Thrift	398
Summary	399
What Purely Temporary Results Will the War Bring	
About?	399
The Rise in the Rate of Interest	399
Higher Yield of Long-term Bonds	399
Explanation of Stable Rates during 1915 and 1916 .	402
Higher Returns of Short-time Loans	403
Changes in the Purchasing Power of the Dollar	405
Causes of the Declining Purchasing Power of Money	407
Influences Governing Interest Rates After the War	408
Results of Advances in Rates of Interest	410
What Should be Our National Policy?	411

XXII.	NATIONAL THRIFT, BY FRANK A. VANDERLIP	415
	Larger Aspects of Thrift	415
	Its Social Significance	416
	Thrift and Reconstruction Needs	417
	The Standard of Living	418
	The Discipline of a Harder Life	419
	The Appeal to the Consumer	419
	Fallacies in Extravagant Expenditure	420
	The Personal Aspect	421
	Psychological Aspect	422
	The National Aspect	422
	Types of Savings Institutions	423
	War-time Channels of Savings	423
	Present Incentives to Save—Individual	424
	Present Incentives to Save—National	425
XXIII.	FISCAL RECONSTRUCTION, BY EDWIN R. A.	
	SELIGMAN	427
	The Three Aspects	427
	The Debt	427
	The Conversion of the Debt	428
	The Payment of the Debt	429
	The European Theory of a Perpetual Debt	429
	The American Theory of Repayment	430
	Application to the Present Problem	430
	Reasons for Rapid Repayment of Debt	431
	Rapid Repayment Favorable to Enterprise	432
	Summary	433
	Taxes	434
	Increase of Government Expenditure	434
	New Sources of Revenue	435
	Taxes, Burden or Privilege	436
	Impersonal vs. Personal Taxation	437
	Property vs. Income	438
	Graduated Taxation	438
	Earned vs. Unearned Income	439
	Luxury as a Test of Ability to Pay	439
	Land Tax	440
	Tax on Capital	441
	Tax on Business	442
	Summary	443
	The Adjustment of Revenue and Expenditure	444
	The Relation of State and Federal Taxation	444

ANALYTICAL TABLE OF CONTENTS

xxiii

CHAPTER

PAGE

Budget Reform	444
Conclusion	445

XXIV. CAN DEMOCRACY BE EFFICIENT? THE MECHANICS OF ADMINISTRATION, BY

FREDERICK A. CLEVELAND	447
Lack of Standards Due to Lack of Competition	447
Politically We Still Live in the Eighteenth Century	448
Some of the Illusions from Which We Suffer .	448
The War Has Forced Us to Face a Real World	
Politically	449
Our First Realization of the Need for a Strong Government	450
The Mechanics of National Efficiency	450
Strong Centralized Leadership a First Essential to Efficient Coöperation	450
A Well-organized and Well-disciplined Line a Second Essential	453
A Highly Specialized Staff a Third Essential .	454
Germany's Success Due to the Use of These Three Principles	454
The Mechanics of Democratic Control over Leadership	455
Independent Responsible Inquiry, Criticism, and Publicity a First Essential	456
Control Must Reach the People	460
Restatement of Principles	460
Germany Used Only the First Three	461
Britain Left Out the Second and Third . . .	461
France Used All the Principles	461
America Has Left Out All of Them	462
The Paramount Question	462
How Our Government May Be Made Both More Efficient and More Democratic	462

ALPHABETICAL LIST OF CONTRIBUTORS

	PAGE
AUSTIN, O. P.	267
BRAND, CHARLES J.	217
CLAPP, EDWIN J.	245
CLEVELAND, FREDERICK A.	447
COLVER, WILLIAM B.	177
COOPER, HENRY E.	305
FISHER, IRVING	361
FRIEDMAN, ELISHA M.	3, 15
GILBRETH, FRANK B.	125
GILBRETH, LILLIAN MOLLER	125
HESSE, BERNARD C.	145
JOHNSON, EMORY R.	233
KEMMERER, E. W.	391
MORRIS, RAY	199
NOYES, ALEXANDER D.	39
OWEN, ROBERT L.	321
PERKINS, GEORGE W.	45
POTTER, A. A.	99
ROGERS, ALLEN	115
SCHWAB, CHARLES M.	135
SELIGMAN, EDWIN R. A.	427
SISSON, FRANCIS H.	345
SMITH, GEORGE OTIS	59
SNOW, CHAUNCEY DEPEW	279
TAUSSIG, F. W.	465
VANDERLIP, FRANK A.	415
WEHLE, LOUIS B.	153
WHITNEY, WILLIS R.	89

FOREWORD

BY FRANKLIN K. LANE

Secretary of the Interior

No man knows where we are going after the war; what will be the nature of our new society, how new it will be. The imagination of the world is naturally challenged by the largeness of the opportunity to put all things right.

The one danger of any period of reconstruction is not the inventiveness of the human mind,—throwing into the air for all men to gather by wireless new lines of thought, novel conceptions of society,—the danger is in letting go the old before the new is tested. The ship must not be allowed to drift. We must make sure that we have power to take us in the new direction before we let go the anchor. To reject tradition, to despise the warnings of history and to be superior to the limitations of human nature, is to drive without a chart into a Saragossa Sea of water logged uselessness.

But the figure of steering a ship must not be carried too far. It has its limitations because man is a growth, not a machine. The captain of the ship knows his point of destination as well as his point of departure. The statesman cannot know at what port he will arrive. His supreme duty is to bring his ship safely into a harbor, with a crew that is not in mutiny and his hand on the wheel. The state must be a "going concern."

To adapt ourselves to the conditions that will arise after the war will be a task that will also demand an ability to reject what is not needed or not fitted for utility under man's advanced conception of himself. Revolutions come, radical departures of all kinds are taken, because of a too slothful appreciation of a change in the weather. The American people are not dangerous. They are really, I believe, the safest and sanest people on earth. There is no danger whatever of their rushing headlong down a steep

place into the sea. Sometimes they may be a bit too logical and hence unnatural in their adherence to the Cromwellian philosophy of "thorough," but no people have a more perfect sense of fair play or a keener sense of humor, and the reaction from these makes for steadiness, stability, wisdom, not passion. This though is true, that their judgment must be respected, and respected in time, if things are not to go further than they would wish themselves. And this lesson conservatives must learn: The Sovereign Citizen is here!

So far as plans for making over our industrial or financial or economic lives are concerned, the commonest schemes involve too great a risk of establishing bureaucracy. To avoid the setting up of such machinery, however, unless it is vitally necessary, indispensable, seems to me the part of wisdom. The common impulse when in a tangle or a haze is to cry out, "Let us refer the whole business to a body of experts," which, to be sure, is the only way in which much of government can be handled. Yet experts, as all know, have the same capacity for imperialism, for cowardice and for subserviency as all other men. They come to wish to exercise authority and have a tendency to exercise it ruthlessly if protected from public criticism. They are also as weak-kneed as men in general before the hasty judgments and clamor of the multitude or the will of those who are politically powerful.

This Nation is ripe, not so much for any one change in its way of doing things as for an extension and a broadening of its own old way. A little Hawaiian girl told me in Hawaii that America was in the war to "help those who need help." That is our spirit abroad (not pure altruism either), and it is the sound center of our system of government at home. We shall reconstruct, build anew, for a broader democracy, in which men will learn more perfectly to work together, not for the making of a great state, but, on the contrary, for the making of more self-owned and growing individuals.

PART I

A PERSPECTIVE OF THE PROBLEM

I

THE PROBLEM OF RECONSTRUCTION IN THE UNITED STATES

BY ELISHA M. FRIEDMAN *

Statistician, War Finance Corporation, Formerly with Non-Ferrous Metals Section, War Industries Board, and Eugene Meyer, Jr., & Co., New York

An Explanation of the Opposition to Discussion of Reconstruction.—In the early part of May there was introduced a measure into the House providing for the creation of a commission to take up the problems of reconstruction. From time to time articles have appeared advocating this course. Aside from the unavoidable difficulty of distracting the national mind from the pressing task of the day and the great danger that many half-cocked schemes will be advanced by doctrinaires, some justifications may be found for the opposition to the initiation of reconstruction measures in the past year.

The underlying idea of reconstruction is the attempt to determine what new conditions resulting from the war confront us and what suitable adaptations may be made to meet them. Now the first year of the war was essentially one of preparation for its conduct. There was need for single-minded and whole-souled intensity in bringing the country to a war footing. In addition, it would have seemed folly to attempt to find out what the new conditions would be before the antecedent causes took full effect. Since the changes incident to war had not yet fully taken place,

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4 AMERICAN PROBLEMS OF RECONSTRUCTION

adjustments to peace conditions could not be investigated or applied. For the United States to have undertaken a program of reconstruction before we were well under way with our war preparations would have been as absurd as for an individual to carry a sling and a crutch in the expectation of being injured in a particular manner. The actual injury might be quite different from the expected one. It is worth while noting that neither England nor France appointed a Ministry of Reconstruction until after the third year of the war, and even Germany appointed her Imperial Commissioner for Transition Economy only after two years of war had elapsed.

It should also not be overlooked that the formulation of a program of reconstruction presupposes a study of the after-war problems in industry and foreign trade. Had we, shortly after our entrance into the war, made any attempt, however slight, to anticipate trade conditions, we might have played into the hands of the enemy propagandists, who would have seen in this measure a vindication of the German slander that this is a Dollar War and that America expects to profit out of it. The finest vindication of President Wilson's lofty idealism is the firm disregard by the country as a whole of any selfish gain to America during or after the war. Even our most biased critics must be impressed by the sincerity of our efforts, attested as they are by the intensity and the single-mindedness with which we are pursuing the common Allied goal. The fact that we do not view the war objectively is evidenced in our failure during the past year to provide an after-war program and is the most searching test of our earnest disinterestedness.

The Present Need for Taking up a Consideration of Reconstruction.—Sound as are the above reasons for not having attacked the problem until now, there is no gainsaying the fact that we are getting deeper into the war from day to day. We are mobilizing our man power, for military and related purposes. Our industry is undergoing radical transformation for the purpose of increasing our military efficiency. Our raw materials are being diverted from normal uses to the production of military equipment. Our trade routes are being radically altered. Consumption of luxuries is largely cut off, and essentials are restricted or substituted. We are raising huge loans at a rate faster

than any of our allies did. Our taxation policy is greatly changing.

Some of our soldiers have already been wounded and need treatment and reëducation. Every step further into fields of war means a greater distance to be retraced to return to peace conditions.

In addition to the internal evidences of the need for a study of reconstruction problems is the testimony furnished by the action of foreign governments. Germany established her Imperial Office for Transition Economy by an order of the Bundesrath on August 3, 1916. England set up her Ministry of Reconstruction by an act of Parliament of August 21, 1917. France, by a series of Presidential decrees and legislative enactments extending from August, 1917, onward, made provision for a study of reconstruction problems, although a commission had been at work on the narrower problem of the rehabilitation of the invaded provinces since May, 1916. But not only have the major belligerents turned their attention to the morrow of war. Russia, Japan, Belgium, Serbia, and Bulgaria have attacked the problem from various angles. Even the neutrals like Spain, Holland, Chile, and the Scandinavian countries have committees at work to study the effect of the war either on the entire economic situation or on some particular aspect of it. We should not be taking a very original course or opening ourselves to any kind of criticism if we also, at a propitious moment, set a committee to work to study our after-war problems, regardless of whether the war ends next fall, next year, or five years from to-day.

A Tentative Plan.—The first need which becomes apparent is to find out what has been done abroad. In some respects the United States bears the same relation to the other belligerents as the youngest member of a family bears to his brothers who have had a diversified experience whereby he may profit. Because our problems are so similar to those of the European countries it will be decidedly worth while to organize a small body of enterprising economists, who could rapidly furnish a summary of the foreign progress in plans for reconstruction. As a result of their findings the aims, scope, and methods of a board or committee on reconstruction could be defined. This committee on reconstruction should centralize within itself all the functions,

6 AMERICAN PROBLEMS OF RECONSTRUCTION

regardless of the fact that other branches of the government, such as the Surgeon General's Office, the Department of Labor, the Department of Commerce, or the Department of the Interior, would undertake to carry out the various lines of reconstruction activity.

The authority, as well as the planning, should be centralized in the reconstruction committee, and the responsibility thereto of the various government departments should be refocused in it.

Scope of the Immediate Problem of Transition.—While the long-range problems may without danger be postponed in treatment, the immediate problems we can ill afford to neglect. These deal primarily with the transition out of a state of war and not with any general attempt to alter fundamental conditions of the national economic life. They must be anticipated in time, so that at the end of the war we shall have a perspective and a method of treatment which will enable us to handle these problems. They include—

- (A) Convalescence of sick soldiers.
- (B) The reëducation of the crippled for new vocations.
- (C) The demobilization of the Army, of munitions workers, and of other civil employees engaged in war activities.
 - (1) The prevention of unemployment.
 - (2) The registration of soldiers by vocations.
 - (3) The demobilization by industries, a census of which may be necessary.
 - (4) The settling of soldiers on the land.
- (D) The dismantling of emergency organizations serving war purposes.
- (E) The handling of raw materials.
 - (1) The demand of foreign governments for our raw materials.
 - (2) The supply of raw materials left in the hands of the Government, including scrap.
 - (3) The unfilled orders or uncompleted contracts given for Government account.
 - (4) Our demand for foreign supplies.
 - (5) The need for the regulation of the movement of raw materials.

- (F) The transition of industry from a war basis to a peace basis. There should be a subcommittee to cover each industry.
 - (1) New uses for war plants.
 - (2) An industrial census should be taken, as was done in England, France and Germany, in order to determine what commodities can best utilize labor, plant, and machinery after the war.
 - (3) An analysis of the demand for commodities, such as structural steel and other building materials, unsatisfied during the war and accumulated for satisfaction during the after-war period.
 - (4) An analysis of the unfilled war orders for the purpose of determining what uses may be made of the semi-finished commodities in times of peace.
 - (5) The problem of the transfer of labor so as to cause minimum unemployment.
 - (6) A study of wages and prices and an attempt to furnish relief if not a remedy for the maladjustment expressed in the phrase "the high cost of living."
- (G) The restoration of normal trade conditions.
 - (1) A study of the new trade routes resulting from the war.
 - (2) The problem of the tariff and the effect of the Paris resolutions or similar impediments to trade.
 - (3) Substitutes for war exports.
 - (4) The rehabilitation needs of Europe.
 - (5) Protection against centralized buying or the secret buying away of our raw materials through agents of the Central Powers.
- (H) The restoration of foreign exchange rates to parity, so as to eliminate abnormal exchange rates, an unnecessary impediment to the easy resumption of trade.
- (I) The guarding of our gold supply and the regulation of the gold flow so as to reestablish international credit and stability.
- (J) The protection of the consumer by means of price fixing, regulation of consumption, priority, and other war expedients that may be of value in facilitating the transition.

8 AMERICAN PROBLEMS OF RECONSTRUCTION

- (K) Relief of the poor.
 - (1) Unemployment insurance.
 - (2) A civil pension list (extension of the provisions of the War Risk Act).
 - (3) Experiments in municipal feeding (as in Birmingham and Glasgow).

Some of these problems are being handled individually by various departments of the Government and without relation to any complete scheme. What is necessary seems to be some centralization of planning and of responsibility whereby the individual problems may be properly related to one another.

Scope of the Long Range or Reconstruction Problem.—In addition to these questions which at the close of hostilities will press for solution so insistently as to leave little opportunity for their calm consideration there are the broader and less urgent matters which the other nations of the world are considering and to which we should likewise give thought.

- (A) A national labor policy—a continuation of the policies designed to maintain during the war harmonious relations between employer and employed and to safeguard standards of living.
- (B) A raw material policy—to develop the national resources in the national interest, to insure self-sufficiency in a crisis, and to prevent foreign control of them.
- (C) “Key” or preparedness industries—to consider the extent of the need for and the method of establishment of industries essential to economic independence of other countries.
- (D) A national-research policy—to study the technical needs of industries, with a subcommittee for each industry.
- (E) A “trust” policy—to define the attitude of Government toward the concentration of industry and toward Government control or regulation.
- (F) A foreign trade policy—to study the defects in our present methods and to recommend means for the extension of foreign trade.
- (G) A foreign banking policy—to analyze the lack of facilities for the financing of American foreign trade, in the

light of the practice of the successful European trading nations.

- (H) A taxation policy—to study the problem of public debt and taxation, so as to formulate principles of an equitable scheme of taxation.
- (I) A consumer policy—to study the problem of fluctuation in prices and the desirability of a continuation of a scheme for fixing prices and controlling distribution.
- (J) The improvement of governmental machinery—to study the organization and functions of government so as to reveal its present weaknesses and to recommend measures to insure efficient administration of any policies contemplated by the executive or voted for by the electorate.
- (K) The Americanization of aliens—to study the method and rate of assimilation of American ideas and ideals by the foreign-born population.
- (L) An educational policy—to outline a national system of education so as to promote vocational education for the average child, to foster scientific research for the exceptional student, and to develop a strong Americanism, with ideals of public service which will make possible the execution of national policies.

THE LESSONS OF THE WAR AND OF EUROPEAN RECONSTRUCTION TO AMERICA

A. A. General Economic Staff.—The war has developed the instruments which a nation needs for the efficient conduct of the enterprise in hand. The idea of a General Staff in war time is an accepted part of the state machinery. The uses of an analogous institution in times of peace has been greatly emphasized in the European studies of reconstruction problems.²

² Other recommendations covering an international body and not only purely national ones are put forward.

In England Arthur Greenwood ("How Readjustment May Be Facilitated After the War": Ruskin College Conferences, July 21, 1916) recommends "that parallel with the Peace Congress there should be an International Economic Commission charged with formulating an economic policy for facilitating the restoration of international economic relations and the reconstruction of the world's economic system.

10 AMERICAN PROBLEMS OF RECONSTRUCTION

In England one writer³ says: "Just as in actual war we require a General Staff, with an organized intelligence department, to anticipate, consider, and advise on all strategical problems which may arise, so for the purposes of trade we shall want an organized body, whether it take the form of a Department of Commerce and Industry or otherwise, whose duty it will be to anticipate, consider, and advise on industrial and commercial matters, collecting and digesting the reports of intelligence officers in all parts of the world." A similar suggestion comes from Dampier Whetham,⁴ who suggests an economics committee or advisory council which shall be charged with supervision of the national economic development and shall recommend bounties or special tariffs, suppression of some unsuited industries, and the fostering of "key" or pivotal industries, as optical glass, chemical, porcelain, dyestuffs, drugs, and explosives industries.

In France a similar scheme is broached by Maurice Alfassa,⁵ who recommends that France establish a Department of National Economy to bring about a closer coöperation than in the past between state and private interests and to centralize and prepare economic campaigns in much the same way as military campaigns are conducted during the war. Interministerial relations should be established by an economic committee (Comité Économique or Cabinet Économique) similar to the Committee of War (Comité de Guerre), under the presidency of a minister and with the assistance of experts. The task of this committee would be to complete the coördination of departments. There should be periodical meetings of the chiefs of bureaus to consider from their various angles questions concerning several ministries.

In Germany the creation of the new Department of Economics called forth the appeal for an Economic General Staff.⁶ The body will consist of a Superior Advisory Council to deal with the larger problems of economic policies. This council will be com-

Such a commission should be as widely representative as the Peace Congress itself. It would be a great gain if this body were given a permanent existence."

³ Parker of Waddington, "Some After-War Problems": *Quarterly Review*, April, 1916.

⁴ "The War and the Nation," pp. 162, 163.

⁵ "La Préparation de l'Après Guerre": *La Nouvelle Revue*, Oct. 15, 1917.

⁶ See discussion in the *Vossische Zeitung*, Dec. 8, 1917, by Leo Lustig.

posed of representatives from various commercial bodies, from different industries and trades, representatives of shipping, of banking, of insurance, and of consumers' interests. There will be an information bureau to prepare data for the council. The writer complains that there was a lack of technical information among the high officials which led to many errors both before the war and during it. To dispel unfruitful controversy there is nothing so effective as accurate information. The economic interests of Germany require a general staff.

In our own country we have had occasional suggestions put forward along similar lines. In a paper read before the Economic Section of the American Association for the Advancement of Science⁷ Eugene Meyer, Jr., stated: "We need a national council, but not only for military and naval defense. The nation needs the experience and ability of its best citizens in the conduct of the national economic enterprise." In much the same vein is the suggestion put forward in an address by Otto H. Kahn,⁸ calling for a Board of Economic and Financial Strategy.

B. An Uninterrupted National Economic Policy.—Apparently the belligerent nations are becoming conscious of the need for a body which can frame and follow a consistent policy uninfluenced by frequent elections or subject to the unsettling control of the populace. The present administration has undoubtedly gone further than any other one in American history in setting up bodies of experts to conduct the various lines of national economic activity. The Federal Reserve Board, the Federal Trade Commission, the United States Tariff Commission, the United States Shipping Board, and the Federal Board of Vocational Education are all evidences of the soundness of the policy applied by the present administration. Some provision for joint consideration of national problems by these bodies and others that may be created could easily be put into effect and would furnish a splendid instrument for fostering our economic progress. The binding tie between these boards might be a body—shall we call it the "Elder Statesmen"—composed of our ex-Presidents. Democracies indeed are wasteful. Citizens prepare themselves dur-

⁷"On Some After-War Economic Problems," read Dec. 29, 1916.

⁸"National Efficiency," before the Bankers Club of Chicago, Jan. 12, 1918.

ing almost a lifetime for the supreme task of the Presidency, they gather experience therein at a cost to the nation, and then they are turned adrift, apparently to vindicate the democratic character of our institutions. A body of ex-Presidents with advisory powers would be a steadying influence in the prosecution of a line of conduct which would redound to the national good. The appointment of Mr. Taft on the Labor Board is a step in this direction.

It is a peculiar commentary on our government that we set the lower limit of age in fixing the prerequisites to civil office, whereas in military service, where the test of efficiency is keener and more plainly indicated, we set the upper or age limit in retirement from office. If the national economic policy is to be characterized by youthful imagination and aggressiveness it will be necessary to balance the wisdom of age by the buoyancy of youth.

As government grows in complexity it transcends the capacity of the average congressman to understand it, to say nothing of directing it. Years of oratory have been wasted in fruitless discussion of facts and policies which could be readily determined by a small board of experts in as many months. The march of science marks the retreat of the unknown and the supernatural. Similarly, the progress of boards of experts—in trust matters, for instance—will mark a beneficent decrease in the debatable area in legislative halls. Arguments can be interminable and indecisive only when the facts are indefinite or not clearly presented. Our national economic policy can best be fostered by taking out of the hands of the legislature functions which properly belong to scientific investigators. "The legislator is neither chemist, nor physician, nor physicist, nor economist, nor moralist, but all of these in some degree, and something more as well, in the sense that he must gather to a focus the complex calculus of probabilities, the data for which are supplied by the separate investigators."⁹

C. The Tools of Democracy.—This question brings us to the larger problem of political introspection. To solve our economic problems, we must look to the methods and machinery which we depend upon to accomplish the aims. Just as the crew of a

⁹ W. S. Jevons, "The State in Relation to Labor," p. 29.

rain before a journey tests the engine and trucks, so the nations of the world at the beginning of a new era are examining every political assumption and every political institution. We have too long taken our government, as it stands, as a matter of course. This is the empirical attitude. The scientist either in the laboratory or in the field tests his instruments periodically to detect variations of error or maladjustments of parts. In the realm of politics the more precise and more evident methods of science will be of value in calibrating the tools of democracy and therefore in facilitating the accomplishment of its aims. There is need for an enlightened and discriminating electorate, the need for an educational qualification for suffrage, both in general and on the issues of a campaign. Our legislation should originate in bill-drafting bureaus, where all the facilities of legislative research are available. The functions of the representatives of the people is not to formulate legislation but to mold it by criticism. The methods of successful management in business are the methods that a government must apply, even though the stimulus of a profit and loss statement be lacking. The aims may be different, but the principles of administration are the same. The progress of democracy depends directly upon the suitability and effectiveness of its tools.

There is no better way of perfecting the instruments of political action than by a study of comparative government. That the present administration will stand out as an historic one in the field of domestic affairs is due in no small measure to the fact that President Wilson is a profound student of politics and comparative government. By looking to the machinery which other nations use to accomplish their purposes, by noting its defects and its virtues, the electorate may improve the mechanism which it creates to express its will.

To set up our national economic goals, as well as to develop the proper instruments for their realization, it is necessary to save the brain power of the nation as a driving force. In the universities the nation has an unused asset. If it is true that what the university thinks to-day the nation executes to-morrow, it is particularly necessary that we utilize to the full the potentialities of achievement of our schools. Some of the economists and students of politics who have been pressed into the government service have splendidly vindicated the schools as the

14 AMERICAN PROBLEMS OF RECONSTRUCTION

veritable cornerstones of democracy. If some arrangement could be perfected it would be well to have members of the faculties of political and social science spend their sabbatical years in the government service. The effect would be twofold. It would bring a new point of view, a freshness, and an inspiration to the government departments. As an equally important result it would enable the students to receive a living message from their teachers, whose thought would direct them to the service of the nation.

II

PRINCIPLES OF RECONSTRUCTION IN EUROPE

BY ELISHA M. FRIEDMAN

Literature of Reconstruction.—To an observer reading the current journals in England, France, or Germany it would seem that the dominant currents of thought flow along the lines of reconstruction. He would be impressed with the spirit of resolution and of purposeful planning of the future of nations. The magazines abroad contain fewer articles on the war than on the problems of peace. The universities particularly seem to be seeking the way that the nation will follow to-morrow. The *Round Table*, the *Economic Journal*, the *Athenæum*, and the numerous other English reviews are forums for the discussion of the after-war problem. And so in Germany does the same hold good—not to burden the reader with the resonant multi-worded titles of their journals. In France also this has been true, though to a lesser extent. The same tendency is evident in the book world. A recent number of the *Athenæum*, for instance, gives on one page the announcement of nine books on different aspects of reconstruction.

At the date of this writing there has appeared no single comprehensive treatment of the subject either in book or magazine form in this country. The *New York Times* published some articles in a series, treating chiefly, however, the international and diplomatic aspects of the subject, over which we have not the sole control. The Carnegie Peace Foundation, under able leadership and with the aid of scholarly contributors, is undertaking the study of the economic effects of the war on the United States. The National Foreign Trade Council since the 1914 convention has been meeting annually to discuss certain aspects of the sub-

ject. Sporadic efforts in the same direction have been made by the National Association of Manufacturers, the American Exporters' Association, and the Efficiency Society. As for the Government bureaus, there have been some illuminating publications issued by the Department of Labor and the Department of Commerce, as well as occasional statements emanating from the Federal Reserve Board. The official publications are evidences of a silent and unobtrusive activity whose nature seems to be determined by the universal desire not to permit any diverting influence to retard the prosecution of the war.

Justification for the Study of the Problem.—The United States has been engaged in war for a year and has not yet reached its maximum of effort. It is therefore advisable that nothing be said or done that would divert the national mind, which it was so difficult to concentrate on the prosecution of the war, from pursuing this goal single-mindedly. However, life is complex and refuses to be routed over a single track. True enough, a war motto reads "The Germans won't wait," but this is merely a particular instance of the general rule that the world won't wait. The doubt as to the future and the attempt to anticipate after-war conditions have been in the thought of individual business men. Many of them feel that the after-war problems can be best met by preparation, that the nations of the world are like runners in a world race whose pace will be set by those that plan their future, and that those that fall behind may be the ones that were late at the start.

However, the problem transcends the scope of commerce and exceeds the power and purposes of individuals. The needs and the difficulties of planning for the to-morrow of peace were nowhere more clearly stated than by Prof. W. R. Scott in his "Economic Problems of Peace After the War"¹:

"Modern commerce finds its supreme expression in the anticipation of the future. The application of science to industry tends to lengthen the time of production, while on the other side what is produced is usually both greater in volume and more efficient in character. The protraction of that production which seeks a world market makes the forecast-

¹ "The Surprises of Peace," pp. 62, 63.

ing of the demand, which is not yet in existence, a necessity in almost all important industries. The producer must create from within his own mind the vision of those conditions with which he is concerned as they will be, not merely in the future but at a fixed date in that future. It is necessary for him to divine how forces, which he cannot control, will behave, and at the same time he must coördinate with these forces other causes the action of which he can direct to a greater or less extent. Stated in this abstract form, the practical problem seems to be one of remarkable difficulty, but in normal circumstances it is accomplished with sufficient general precision. The task of the producer is facilitated by the continuity of events, where the changes which happen are regular and move in certain directions which can be estimated. Many conditions which exert great weight in the ultimate effect remain relatively unchanged, and in normal circumstances these may be neglected in framing forecasts. But in the abnormal state of war all this is changed. Not only do new and highly uncertain phenomena emerge with disconcerting suddenness, but the causal values of old conditions change. And the function of judging and laying plans for the future is rendered more difficult by the fact that the higher forms of commercial skill have remained essentially an art, and thus the process is largely instinctive, as it is almost inarticulate."

The need for reconstruction is being voiced on all sides in Europe and is only beginning to be felt in this country. Whatever progress we made during the first year of the war was due in a large measure to the compulsory preparation which the previous demands of the Allies imposed upon us while we were neutral. There is no corresponding stimulus to peace preparations unless we find that stimulus in our own common will. The distinction is clearly stated for England by Sidney Webb: ²

"The difference between the outbreak of war and the outbreak of peace is that we did not expect the former and we do expect the latter. War sent the whole nation scur-

² Fabian Tract No. 181, "When Peace Comes: The Way of Industrial Reconstruction."

rying round like scared rabbits trying to prevent dislocation from spelling unemployment and starvation. The Declaration of Peace will entail an even greater dislocation of industry and of wage-earning than did the Declaration of War. If we let it come upon us without adequate preparation, it will be much more difficult to deal with and much more socially disastrous than anything that we have yet had to face. It will create much more discontent and angry feeling, for thousands who would cheerfully die for their country in the stress of war will furiously resent going hungry in time of peace. But we can see the trouble coming, and we can, if we choose, prepare for it."

In the same vein is an article on some after-war problems published in the *Quarterly Review* for April, 1916, which says in part:

"The war took us unawares. Whether it was probable or improbable only those who had access to official information were in a position to judge, but no one will contend that the policy to be pursued or the measures to be taken to deal with any one of them had been adequately thought out or matured. The war may have been improbable, but peace will certainly come, and with it a number of problems which, if dealt with by impromptu or opportunist measures only, may easily entail on our posterity calamities even greater than those entailed by the war itself."

Of similar import is the statement of Lloyd George:

"The mistakes that we might make through entering on peace without preparation would be even more disastrous than the mistakes you might make by entering into war without preparation. The things that you will do will be more permanent; you will give direction and shape to things and though the world will [be] very molten at that moment, it will cool down very quickly and the shape which you give to it will remain. And if your mold is not the right one, you cannot possibly set things right without another convulsion that will break it. . . ."

PRINCIPLES OF RECONSTRUCTION IN EUROPE 19

But not alone in England have these sentiments found their spokesmen. In a series of articles Maurice Alfassa³ writes:

"There is uncertainty about the future, and therefore government activity must be uncertain. Although the situation is difficult on account of the complication in finances and the unparalleled changes in the economic activity of all peoples, those in charge of public affairs should examine the situation in a unified way and not by fragments. A national official organization should attempt the solution of the problem.

"A commission, a cabinet office of the government, to obtain the collective views, to develop resources, to manage production, and to adjust the foreign relations of French citizens is a necessity. A short-sighted policy not only fails to solve its daily problems, which are increasingly aggravating, but places France in a position of manifest inferiority as compared with its Allies, who have begun to prepare for their economic reconstruction."

In Germany war-time activity in reconstruction has been keenest. One of the leading economic publications⁴ prefaces an article, the first of a series on "Demobilization and Reconstruction," with the statement that the danger of unpreparedness for peace is as threatening as unpreparedness for war. And in the same vein another writer in the same journal⁵ tells us:

"The longer the war lasts the less likely is the return in our day of the unrestricted freedom of the individual. As the war goes on it becomes impossible to remove the traces of the organization of the war economy, and what may have been a necessary measure during the period of transition may become the cornerstone of the German economic structure. In the new conditions which will arise it is necessary to have a visible plan. If one adopts only those measures which become necessary from day to day there will be a

³ "L'Exportation": *La Nouvelle Revue*, Nov. 13, 1917, and "Problèmes d'Organisation Économique": *Idem*, Sept. 15, 1917.

⁴ *Europäische Staats- und Wirtschafts Zeitung*, Dec. 15, 1917.

⁵ Kurt Singer, "Some Basic Questions of Reconstruction," Oct. 20, 1917.

contradiction between the general plan and the individual measures leading to uncertainty and friction. All the difficulties and faults of the war are due to the fact that we did not think through our problems in a connected way. Therefore our solutions are incomplete and disconnected. It will be necessary not only to do the right thing for the moment but also to act with a clear purpose and in coördination so that all opposition will really be on the basis of class interest. The economic and financial policies of the Empire must be carried out by strong hands along unified principles so that in every measure there appears purpose, coördination, and responsibility. Only such a meaning or intent will justify the gigantic revolution which will change the features of our economic life for perhaps a hundred years."

We in the United States have not been entirely indifferent to the need for facing the after-war problems. Bankers and publicists and far-seeing business men have been expressing their views on this subject. In an address⁶ on "Some After-War Economic Problems," Eugene Meyer, Jr., called attention to the fact that both England and Germany had taken time by the forelock and instituted bureaus "to find work for the soldier, credit for the manufacturer, raw material for industry and to stabilize their foreign exchange."

And in much the same spirit William S. Culbertson, of the United States Tariff Commission, writing of its work,⁷ makes a plea for preparedness for peace:

"Apart from the particular measures considered abroad, with which we are not directly concerned here, the activity of foreign countries in the study of the problems of reconstruction is alone a sufficient justification for similar work in this country. It is proper that we should regard the winning of the war as the supreme duty of the moment. But we cannot wait until the end of the war to consider the complex problems which will then confront us. The imperative need of economic preparedness now will be as evident

⁶ Delivered before the American Association for the Advancement of Science, Dec. 29, 1916.

⁷ *North American Review*, January, 1918.

when hostilities cease and trade and industry attempt to return to the normal conditions of peace as military preparedness is to-day."

One's attitude toward the need for the study of reconstruction depends not only on the facts but also on the personal equation. A good many men are either indifferent or opposed to its consideration. But the reason is not far to seek. More often than not they are the over-worked men who are devoting from twelve to sixteen hours a day to facilitating the prosecution of the war. Some of them are old men or conservatives in outlook. Others are empirical thinkers. And finally you have those men "who have not come to themselves," as President Wilson puts it, and therefore cannot see over and above the immediate task, cannot behold its relation to a time beyond or to the larger scheme of things. However, the business man with all his fortune staked upon the correct interpretation of the future, the statesman with far vision, the anxious patriot who feeling the call of the national spirit has been unable to give it adequate expression in other directions, the sociologist whose standard of time is not the year but the generation, whose unit of action is not the individual but the group—all of them feel the advisability of making some attempt to foresee the future and to prepare for it.

It is absurd to assume that when the war ends we can return to our accustomed tasks or to pre-war conditions, even though we may have bound ourselves to do so. The longer the war lasts the further do we depart economically and politically from the standards of August, 1914, and the greater is the gap to be bridged. For, as W. R. Scott says: ⁸

"Emergency measures presuppose a static conception of industry. The arresting of some social function does not mean that it can be isolated so as to resume its previous activity when the war has ended. During the period of suspension the process of adaptation to environment continues, and it is not improbable that the suspended function will be released in circumstances which will be greatly changed. In the words of Burke, 'War never leaves where it found a nation.' It is said that James I called for his old shoes because

⁸"Economic Problems of Peace After the War," pp. ix, 31, 72.

they were easiest, and many of us face the upheaval of war with old ways of thinking, because they are easiest, and we have so long been accustomed to them. The trained faculty of economic analysis can be applied to the new circumstances, as to the old, not by using former generalizations, but by an examination of the fresh phenomena with a view to ascertaining their real meaning, that being precisely the element in the situation which is liable to be apprehended wrongly by the casual observer. And yet it will be impossible to wait until the final, normal industrial life has been reëstablished. Here the element of time in all practical forecasts is of outstanding importance. It is not only necessary to frame a moderately accurate forecast of conditions that are to come. As has been finely said, the best practical minds 'should have ears to hear the distant rustling of the wings of Time. Most people only catch sight of it as it is flying away. When it is overhead it darkens their view.' "

The reconstruction problem of a nation cannot be treated piecemeal. It is an organic problem and can be approached only as a unit. Demobilization of the army and of civilian war workers implies that industry is ready to receive them; this in turn assumes that the raw materials are at hand, that exports are possible, that foreign exchange anomalies have been rectified, and that the financial means are available. No one phase of the problem can be detached from the rest, for the elements which we arbitrarily set up are in reality the expression under different conditions of the same fundamental maladjustment between the present war basis of industry and the new conditions which will supervene upon the advent of peace. While we may for convenience departmentalize the problem and allocate its parts to a sub-committee, yet if we are to envisage all aspects of the problem we shall need that degree of coördination which can come only with a central authority to deal with the problem.

Future Conditions to be Faced.—A traveler isolated from civilization since August, 1914, would upon his return find an unrecognizable world. And so also does he whose objective view permits a calm analysis. The war has displaced the foundations

of our civilization, altered the relation of individuals to society, changed the currents of communication and of trade, accelerated the progress of some nations and arrested that of others. The details of the effects of the war are given elsewhere. Viewing it in the large we find that man power, the instrument of production, has decreased and been impaired in all the belligerent countries. A large population of cripples and invalids has been added as a charge on the income of a less productive generation. Women have been drawn from the homes into the factories. Unorganized, unskilled labor has under the stimulus of the war and with the aid of automatic machinery supplanted the highly skilled and equally highly organized craftsmen. Labor, scarcer than usual, is being paid unheard-of wages. The cost of living has risen to peak levels. Humanity has developed new needs and scrapped its old ones. The relations of demand and supply have been disorganized and realigned to war conditions. New commodities are being produced to replace products previously imported. New industries have grown up and old ones abandoned or restricted. There is a shortage of goods in some directions, and there will be a huge surplus in others when the war ceases. Machinery is used hard, permitted to run down, and insufficiently repaired. Old trade routes have been shut down and new ones opened. The volume of trade has been shifted along new lines and trade balances reversed in some cases and intensified in others, producing the effect of a tariff. The resulting foreign exchange rates have altered in bewildering complexity. Foreign investments have been wiped out, and the resulting invisible influences in the balance of trade, favoring the investing countries of Europe who had adverse trade balances, are no longer operative. Fees for insurance, shipping, international acceptances, and other banking transactions, as well as brokerage fees on the principal exchange centers, all have been suspended. National debts have increased as high astwentyfold in various countries. The interest on the present debt in many cases exceeds the total principal before the war. Taxes have risen in proportion, credit is scarce, interest rates are high, the habit of huge appropriations has been formed. There have been tremendous and inconceivable losses—the destruction of property, amounting to well over ten billion dollars, the expenditure during the war of over a hundred billion dollars to date, and the loss of the annual productive

income of the belligerents. New methods of financing have been evolved. New sources of revenue have been ferreted out to meet this gigantic program of organized destruction. In the face of these conditions both the structure and the functions of government have been amplified and altered. Individual rights have melted away before the urgent demand of struggling nations. The individual has been limited as to income and as to expenditures: his consumption is regulated in quantity and kind. New habits have been cultivated in food, in dress, and in economy. Individual initiative, the mainspring of civilization as we have known it, has been repressed. Some nations have fallen in prestige; others have risen. Human nature, the very substance of humanity, as well as its product, civilization, has been transmuted. The mere cataloguing of these changes calls forth despair in some hearts and bewilderment in others. The world cannot continue on its present basis and it cannot return to its former. Whither are we headed? Organized study alone can tell us.

Some Definitions.—Reconstruction has not the same scope or purpose in all the countries of Europe. In France the ruined districts are the pressing incentive to study the problem. In Germany it is the scientific attitude of mind and the commercial spirit of discounting the future which compel the anticipation of peace. In Great Britain it is the consciousness of slow but steady retrogression in national prestige before the war as a result of a selfish policy of labor and a blind individualism of capital. The prevalence of sound political thinking in England is the mainspring of the reconstruction program.

With France the purpose of reconstruction is a physical restoration of her territories. In Germany it is the desire to continue her race for a place in the sun, which apparently means to her ruling classes an eclipse of the world. In England it is the wide-felt desire, now aroused after hysterical appeals for two years, to regain her lost supremacy over her nearest followers in trade. The scope of reconstruction varies. Basically it means the reparation of the ruins inflicted by the war. But not that alone is contemplated. Many needs which had been crystallizing for a generation have by the exigencies of the struggle been impressed with a clarity of definition. And finally the war has brought into evidence many needs which in the ordinary

course of peace might have waited decades before being sensed by mankind.

The Problem.—There are three stages in reconstruction, whatever be the country involved. First there comes the period of transition from the present state of war to a state of peace. This involves the demobilization of the army and of the civilian workers in munition plants and other war industries, the withdrawal of women from industry in so far as they do not choose to remain, the proper utilization of raw and scrap materials of war, and a discontinuance of the methods, organizations, facilities and policies of waging war. This phase is best denoted in the title of the Office of Transition Economy,⁹ organized in Germany on August 4, 1916.

The next step in the large program is that of rehabilitation. The devastations of war will need to be repaired. Factories will have to be transferred to new uses demanded by peace needs. Manufacturing facilities and transportation structures and equipment which had been neglected and overworked will have to be repaired or replaced. The invalids and cripples will have to recuperate and be retrained for partial use at least. Social unrest will have to be anticipated and relieved by foresighted policies.

And finally comes the period of reconstruction proper, during which humanity hopes to live on a higher plane. This is the period in which the long-range needs are expected to find their fulfillment. The development plans of each nation for its industry, its shipping, its finances—in short, for the complete social life—are framed for the period of repose and security which is hoped for and which apparently must follow as a consequence of the exhaustion of the nations. It is the sobering period after the orgy of intoxication of the Prussian. This program in its last stage is best expressed in the title of the Ministry of Reconstruction, established in England August 21, 1917.

The Nature of the Present Period.—This is a unique phenomenon, this planning of the nations for the aftermath of war. It is but another evidence of the increased social self-consciousness, which, characteristic effect of all wars, for the first time is being

⁹ Reichscommissariat für Uebergangswirtschaft.

recognized and dealt with as an objective fact. History tells of no attempts at reconstruction after previous wars before the signing of peace treaties. In most cases there was no plan, even after the woes of war had ceased wringing the hearts at home and after the surviving warriors who were willing to die for their country found themselves unable to find a living in it. The distress following the Napoleonic wars lived as a personal memory with the characters of the novels of the middle of the nineteenth century. Who can claim that the reconstruction after the Civil War was part of a plan and not the resultant of conflicting fragmentary forces that strove for mastery in the South, leaving behind a sting and a resentment which is patent to this day.

One of the results of this increased social self-consciousness is the ability to think in terms of groups, not only diplomatically and internationally but also industrially, and to perceive new purposes as well as to forge the instruments for their accomplishment. The crisis has generated an intense patriotism, a feeling of oneness, of identification with the political group whose safety or existence is threatened.¹⁰

"It was toward this object that we dimly groped when we felt in the early weeks of the war the impulses of friendliness, tolerance, and good will toward our fellow citizens and the readiness to sacrifice what privileges the social system has endowed us with in order to enjoy the power which a perfect homogeneity of the herd would have given us. . . . From homogeneity proceed moral power, enthusiasm, courage, endurance, enterprise, and all the virtues of the warriors. The peace of mind, happiness, and energy of the soldier comes from his feeling himself to be a member in a body solidly united for a single purpose."

This social self-consciousness generated by a crisis finds expression in a critical self-analysis, a searching of the inward parts, a greater mobility of the national mind, a readiness to discard old habits and to form new ones, a susceptibility to national appeals. As evidence in support of this sensitiveness of the national mind one need but look to the campaigns for food saving,

¹⁰ F. W. Trotter, "Instincts of the Herd in Peace and War," pp. 144 and 146.

for thrift, for bond buying, and for daylight saving. Human nature is being altered in the stress of war. The very substance of civilization is being transmuted.

"Not infrequently the war has revealed that standards [of living] were wasteful in themselves and that the satisfactions they yielded were vastly overrated. Now the opportunity has arisen to contrast the old standard with a new and modified one, and in terms of utility the comparison has not been found to favor the former. It is still not uncommon to see elderly people who in their youth were the younger members of families which had been brought up in the 'hungry forties' exercising numerous small economies. The continuance of these practices through two whole generations shows the remarkable persistence of habits [formed in a crisis]." ¹¹

The war has affected not only the psychology of peoples but equally profoundly their social relations, national and international. Many a gross injustice and maladjustment, recognized as such, was perpetuated in the social organism by its relation to other elements which could not be disturbed without endangering the common welfare. In much the same way the unchanging uniformity of peace failed to expose to the light many of the hidden centers of friction whose troubling effects took form in phenomena of unrest and uneasiness which characterized recent years. But the war has fundamentally disarranged human relationships. It has endangered, far more than any individual revolutionary influence, the very structure of civilization. Further, it has revealed to the keen gaze of a critical age the hitherto deep-seated and overlaid sources of social disturbance. The coming of peace places upon us the duty to rebuild a new edifice, a new system of living. The events of the war charge us with the duty of scrapping those structures of the social organism which have ceased to function, as they impose upon us the duty of guarding its major portion which served it so well in the past and of incorporating the new elements which have proved serviceable in the test of war.

That profound changes are taking place before our very eyes

¹¹ "Economic Problems of Peace After the War," p. 92.

is the sentiment of men who have every reason to be conservative in their judgment. Expressions abound in all the countries of Europe of the fact that civilization is molting its shell—is passing through a period of transition to a new order. In England we can hear Sir Edward Carson telling the British Empire Producers' Organization: "Do not imagine that there is no revolution going on in this country, and do not imagine above all things that there is not a revolution going on in the Empire."¹² In the same vein one reads: "A silent economic revolution has taken place during the last few years, although we may refuse to recognize it."¹³

We learn that in Germany Walter Rathenau, president of the General Electric Company, entertains similar views. His statement, scholarly and profound for a manufacturer, comes from his book, "The New Domestic Economy."

"What is this event, the waves of which are breaking around us? We call it war because it has the form of international war, because the convulsed nations are openly and apparently struggling in air, water, earth, and fire. Coming generations will recognize it. What we are experiencing is a revolution of the world, the volcanic upheaval of the mighty burning lower strata of the abode of mankind. It is not taking place in the disorderly form of a mass uprising with pikes and scythes, as its early prophets thought. That would have been of small account and would not have thrown the world from its axis.

"Made deaf and mad by their ambition, intoxicated by the last and highest distillations of the old order of things, trembling with nationalism and imperialism, nations hurled themselves upon nations in the splendor of their state and military orders, completely equipped by their industries and sciences, with the fury and the grief of their souls and hearts. They believe they are fighting for rulership and existence. But they are fighting a battle the origin of which nobody understands and the objects of which have subsequently to be sought with monthly statements of corrections.

¹² *Journal of Commerce*, Nov. 23, 1917.

¹³ Uriel D'Acosta, "Peace Problems in Commerce and Finance," p. 85.

"In reality, however, the old economic order is burning down, and the time is drawing near when the old foundations of the social order will catch fire."

Although we have not been exhausted by the war, as Europe has, and our foundations have not been shaken, as hers have, and although we have not been as highly industrialized or troubled with a dense population of industrial workers whose presence is a continual reminder of the maladjustments of society, yet we hear similar voices in our own country. Charles M. Schwab aspired to prophesy when he said:

"The time is coming when the working classes, the men without property, will control the destinies of this world of ours. We must look to the workers for the solution of the economic conditions now being considered."¹⁴

Under the destructive forces of this great war the foundations of society are trembling, but it requires a sensitive mind, attuned to mighty harmonies, to register the rumblings which are threatening the established order.

THE DANGERS OF THE PERIOD

A. The Lack of Restraint.—The vast possibilities that liberals see in the present situation are more than matched by the grave dangers of the period. Many a hospital case that has survived serious illness has been killed in the convalescence by the unwisdom of the attending physician. Organisms, whether they are biological or social, need protection against radical treatment during periods of rapid development. It is the recognition of this fact that has called forth the hygiene of adolescence. The period of molting in the lower animals is an especially critical one in which nature seems to have provided a protection in the hiding instincts of the organism. Allowing for the error inherent in analogical reasoning, we may safely say that the program of social reform may lead to reaction if its course is not wisely guided. The unrestricted power of the mob after the French Revolution led to the dictatorship. The unreasoning insistence on an

¹⁴ *N. Y. Tribune*, Jan. 25, 1918.

immediate equitable distribution of wealth in Russia has found its sequel in an unfortunate anarchy, which is the fear and anxiety of those who hope for democracy. The wisdom of the social reformer consists in knowing where to draw the line. The restraining of the spirit of a radical and fluid period is as much to be encouraged as the breaking down of prejudices and the overcoming of the inertia of a static and an unprogressive age. It is the thinking minority that must supply the balancing element which is necessary to maintain the stable equilibrium of society.

B. National Hysteria.—The American observer of European conditions has the advantage of freedom from personal error and of objectivity. In viewing the mental attitude of the Englishman, for instance, we are struck with the hysteria that seems to prevail. Not only are there multitudinous schemes put forward and amazingly peculiar projects advanced, but writers who before the war saw things calmly and in their true perspective now write of "eclipse or empire," "the awakening of an empire," "unity or fragmentation," "plan or failure."

The staid author of the series in the *London Times*, entitled "The Elements of Reconstruction," also fails to see true when he offers the two extreme choices. "In this time of reconstruction there are two entirely divergent ways, one leading straight to Britain's last muddle and the other to an Imperial renaissance. But indeed the future of the Empire is now either one whole, one plan or . . . failure and fragmentation."¹⁵

The emotional appeal seems to be too much in evidence. There is an excessive willingness to listen to rumors of remarkable achievements of the enemy or of rival commercial powers and an exaggerated fear, all of which has an unsettling effect on public opinion and on the currents of thought. An entire nation seems to have worked itself into the infantile state of mind which listens so eagerly to the story of Chicken-Little, who, having seen the sky fall down, repeated the tale to Ducky-Lucky, who in turn spread the news to Henny-Penny and so on to Turkey-Lurkey and to the rest of the barnyard folk, whose fears were finally dispelled upon the reappearance of the sun. True enough, we have been instructed concerning the origin of this mental state of

¹⁵ Pages 40-44.

a nation.¹⁶ And yet we find one author who gravely warns Englishmen of the enormous progress America is making in her after-war plans,¹⁷ adducing as his evidence stray remarks from convention addresses of Mr. Vanderlip which are isolated and shorn from the context. It is much to be hoped that we in this country will not lose our balance or perspective in envisaging our national problems.

C. National Indifference.—Rather is it to be feared that our national indifference will again be dominant and that we shall be dull to the profound changes both within and without our political life. In fact, our national psychology has been that of youth, which is indifferent to the morrow, which postpones the day of reckoning, lacks foresight, is never introspective, is overconfident of ability to meet emergencies, is lavish in its expenditure of energy and material, is exuberant in judgment, and exhibits poor coördination of means to ends. The woeful contrast between the overnight interval after which Mr. Bryan expected one million men to rise at dawn fully equipped for war and the one year which necessarily had to elapse in bringing the gigantic national organization on the road to fighting strength is merely a recent illustration of our habit of mind. But our national maturity has been hastened as a result of the vast burdens which we met successfully as a neutral state. Our economic maturity has been manifested in many ways. Our mental development as a nation will become evident if we discard our usual attitude of indifference toward critical conditions. We shall then have attained our social maturity.

D. Difficulty of Arousing the National Consciousness.—In spite of the fact that there was a real and tangible danger in our state of unpreparedness for war and that the fear motive is easily roused to action by terrifying pictures, our leaders experienced great difficulty in arousing the nation to the sense of its perils and to the need for self-defense until the measures of Teutonic iniquity had run over. With the same national indifference to our large problems and with the lack of any basic instinct to

¹⁶ F. W. Trotter, "Instincts of the Herd in Peace and War."

¹⁷ J. Taylor Peddie, "A National System of Economics," and also in "The Relation of Exports to Imports."

32 AMERICAN PROBLEMS OF RECONSTRUCTION

which to appeal, a campaign for economic preparedness must fall flat. Our hope, however, lies in the greater sensitiveness of the social mind which has been one of the fortunate developments of the war. Whether we will it or not, the world moves on. Even if our population refuses to behold them, momentous changes will take place. It would be national folly for us to attempt to delude ourselves out of the need of at least studying the problems, as it would be also for us to express irritation that other basic questions are scheduled for us when our present great effort of winning the war culminates favorably. Life is complex. The distinction between success and failure in life consists in adjustment to or neglect of environment.

E. Profusion of Fragmentary and Impractical Efforts.—Not less great than any of the above perils is reliance on fragmentary efforts, elicited by the exigencies of the moment. A series of such measures of crazyquilt pattern and often at cross purposes will not solve the problem. What is to be avoided is accident posing as design, patchwork as a proxy for purpose, isolated reactions as a substitute for a comprehensive plan, and inertia parading as a policy.

One of the phenomena of war time is the strength of the appeal of the herd instinct. Those in active government service, civilian or military, derive satisfaction in responding or giving expression to its appeals. Any suppression of this motive in the case of the sensitive members of a nation results in its perverted expression¹⁸ in unsolicited aid to the group. The innumerable anti-submarine devices, from drying up the ocean to destroying submarines by means of bomb-weighted fishhawks, afford a typical example of

¹⁸ "It must surely be clear that in a nation engaged in an urgent struggle for existence the presence of a large class who are as sensitive as any to the call of the herd and yet cannot respond in any active way contains very grave possibilities. The only response to that relentless calling that can give peace is in service; if that be denied, restlessness, uneasiness, and anxiety must necessarily follow. To such a mental state are very easily added impatience, discontent, exaggerated fears, pessimism, and irritability. It is not suggested that these eruptions of discontent are due to any kind of disloyalty; they are the results of defective morale and bear all the evidences of coming from persons whose instinctive response to the call of the herd has been frustrated and who therefore lack the strength and composure of those whose souls are uplifted by a satisfactory instinctive activity." F. W. Trotter, *op. cit.*

this principle, and so in our peace programs prophecies and policies will be indulged in and offered without number. Unaware of the folly of anticipating too distant a future or planning for it in too great a detail, there will be those who people the mists of the morrow with figments of the imagination. There will be a superabundance of schemes and a danger of over-reforming a tired and unwilling world, which has been exhausted by the great conflict and dulled in its power of rapid adaptation. A runaway civilization is in need of brakes.

"The quickened mental apprehension which usually follows a great war cannot be confined to the removing of social and industrial functions which have survived their usefulness. It is at once critical and constructive. And the criticism is applied widely. Thus there is at least the danger that methods and institutions may be displaced in favor of others which prove in the end to be not better but worse. And so, while there is gain in the hastening of improvements and reforms which would otherwise have been long delayed, at the same time there is all the wasted effort of the failures which result from overdriving the chariot of reform."¹⁹

There will be errors in judging the elements of sound reconstruction policies, notably in disregarding the time factor, in misjudging the social instruments of reconstruction, and in overrating adaptability of human nature.

"There is no recognition of that fundamental principle of statecraft—new social classes cannot be suddenly created."²⁰

Though our eyes may be on a distant goal, our feet must be on the ground and progress must be related to tested experience.

THE AIMS OF A RECONSTRUCTION POLICY

In a comparative study of the reconstruction schemes of the various countries of Europe one is impressed with the liberal tendency on the part not only of labor leaders but also of con-

¹⁹ "The Economic Problems of Peace After the War," p. 75.

²⁰ "The Elements of Reconstruction," p. 67.

servative statesmen and of the propertied classes. Apparently liberalism is the keynote of the age. Men who saw no further than the morrow are now taking the long look on social problems. Their views extend beyond their own interests. There is on all sides a confession of defect in the institutions of society and a desire to mold them in conformity with a consciously held view. Society has not only set up its own goals but is consciously striving to realize them.

"In the year 1915 it is, unfortunately, in no way necessary to enumerate the evidences of the confusion of cruelty, the waste, and the weaknesses with which human society has been brought to abound. Civilization through all its secular development has never acquired an organic unity of structure; its defects have received no rational treatment but have been concealed, ignored, and denied; instead of being drastically rebuilt, it has been kept presentable by patches and buttresses, by paint and putty and whitewash. The building was already insecure and, now the storm has burst upon it, threatens incontinently to collapse. . . . The method of leaving the development of society to the confused welter of forces which prevail within it is now at last reduced to absurdity by the unmistakable teaching of events, and the conscious direction of man's destiny is plainly indicated by Nature as the only mechanism by which the social life of so complex an animal can be guaranteed against disaster and brought to yield its full possibilities. A gregarious unit, informed by conscious direction, represents a biological mechanism of a wholly new type, a stage of advance in the evolutionary process capable of consolidating the supremacy of man and carrying to the full extent the development of the social instincts. . . . Socialized gregariousness is the goal of man's development. A transcendental union with its fellows is the destiny of the human individual, and it is the attainment of this toward which the constantly growing altruism of man is directed."²¹

In a consideration of the aims of reconstruction it is necessary to bear the psychological element in mind. Many of the pro-

²¹ "Instincts of the Herd in Peace and War," pp. 161, 162, and 167.

grams may fade into a pious wish and are made up of the element of the eternal optimism which characterizes a virile people or individual. Failure is invariably followed by vows if hope is not lost. Misfortune is followed by resolutions if spirits are brave. A clean slate is the ideal of the rescued derelict. And now humanity, purged perhaps after its well-nigh fatal convulsions, dreams again a new dream of a better social order. Prof. W. Allison Phillips, in a recent number of the *Edinburgh Review*, points to the program of universal peace which was entertained immediately after the Napoleonic wars, of whose sublimated folly we are the unwilling satirists. In a study of the comparative reconstruction programs of Europe we must therefore take into account the personal equation magnified to a national scale. The human error must be eliminated.

On all hands we find a statement of aims. The British Labor Party has its own program. The French Socialists have likewise formulated their views. The German Social Democratic Party has its own platform. The German labor element is equally alive to the situation in its scheme. It is not the problem but the period that brings forth the resolutions and the wishes. Have we not had statement after statement with periodical revisions of the aims of the war by the spokesmen of Europe? And have we not had since April 6, 1917, an equally clear statement of our war aims, lofty, long-visioned, and based on eternal principles of justice and right? It is because President Wilson has the historical background that he has a method of approach. Because of his scholarship he has a perspective. It is not surprising that he has been accepted without question as the spokesman of the Allies. It is for this reason that it is to be anticipated that in due time there will come from him an equally clear statement of the reconstruction aims of democracy.

It is because the times are fluid, because the established order is in the crucible, that liberals have taken heart as to the future and have resolved that before the world is set again on a fixed basis, with its conservatism, its rigidity, and its prejudices, the dormant wishes of those who look for a regenerated humanity shall be heard. The reconstruction program of the British Labor Party makes it plain that it wishes to see no restoration of the old injustices of the passing order.

"The war has given us what social reformers have longed for vainly during the last half-century, namely, the opportunity of making a fresh start as far as that is possible. If we fail to take advantage of it there will be a tragic waste of a chance which occurs only once in several generations."²²

The feeling of a fresh start and a desire to find a new and a better basis is similarly expressed in England:

"The British industrial and business problem is to scrap the methods of 1850-1860 and not to imitate Germany with a copy of her 1890-1900 methods, but to go right ahead to the 1920 pattern. What that pattern should be is in its general form not difficult to say, whatever discoveries in detail remain to be made. The experiment of controlled establishments, the experiences of trusts and combines, German state socialism, the theories of Guild Socialism are all in the solution."²³

The informing spirit of the new view is the fact that changes in the industrial life, while they may have been quantitative, are at bottom qualitative: while business seems to have grown only in size it has simultaneously changed in character. Our measures to meet the new situation should therefore be altered not only in degree but in kind. The increase in size has been attended by a growth in strength and complexity of business, and it is by emphasizing the latter factors and recognizing that the former is incidental rather than essential that we can hope to seek out the proper adjustments to the changes which evolution has imposed upon an amazed social order.

"The relations of business and worker vary with the scale of the business. As the business merges into the State we pass from the question of selling hours of labor to the question of how to make the best use out of a whole life. We pass from an antagonism of buyers and sellers to a scheme for common welfare. . . . A small hundred thousand pound concern can afford to work on a narrow basis for im-

²² W. R. Scott, "Economic Problems of Peace After the War," pp. 75-77.
²³ "Elements of Reconstruction," pp. 37-38.

mediate ends. A chemical industry on an Imperial scale can, on the other hand, do things on a far wider basis, can work for larger and remoter advantages and turn its vast profits more directly to the enduring benefit of the community. It can plan such a liberal and comprehensive treatment of labor as no small employer can attempt. The minor employer deals with his men by the hour, day, or job; he has to take them as they come 'out of the unknown' to him; he is unable to treat them generously as they age; he is powerless to help their children; indeed, to do his duty in any way beyond the immediate business at hand. But a nationalized industry can see the life of labor as a whole and can deal with its own section of organized labor not through a mere string of isolated jobs, snatch-profit occasions, and petty disputes, but as a scheme of lives; can guarantee ease presently in return for energy now; and can formulate and realize big, thorough, efficient, economical, and racially beneficial schemes of education, training, selection, direction, research."²⁴

The ultimate aim of reconstruction is not increased production, nor is it a more equitable distribution of the world's goods. In the large view means and methods should not be confused with ends and purposes. This difference is more than a distinction in words: it deals with fundamentals. If we set up proximate goals as final ends we cannot direct consciously the evolution of the industrial organization, but on the contrary we and our methods become parts of a blind mechanism which now and anon will turn on itself for destruction, as it has since August, 1914.

"Progress is considered rather from the outside, and the form of the statement—the evolution of the industrial organization—is better adapted to the biological conception of animate but non-intelligent existences than to that of the effort of man with his consciousness, will, and reason. Thus we obtain something of the life history of the industrial system, but we seem to be in danger of failing to find its soul. We are shown a mere process (evolution) when in fact we

²⁴ "Elements of Reconstruction," pp. 63, 39, and 40.

38 AMERICAN PROBLEMS OF RECONSTRUCTION

are faced with a problem (the goal of evolution): the problem is not mathematical, physical, or biological, but at once intellectual and emotional. From one point of view that embodies the ceaseless striving of man to express himself in the work of his mind or of his hands. If he is organized in the sense of being a mere instrument, used as a tool by another, then so far his daily toil is something that not only neglects but is even alien to his humanity. Thus there is a lack of harmony in the human factors which coöperate only partially in the scheme of production. The problem of the future will be the harmonizing of this discord. Man is on the way to master inanimate things, but hitherto the failure has been in treating human beings too much like things. Man's place in industry is not to be mastered but to provide free and willing service."²⁵

In short, the goal of social progress is neither production nor material goods. It is a self-expression of the individual in a co-ordinated scheme. And only through self-expression can the way be found to human happiness.

²⁵ "The Economic Problems of Peace After the War," pp. 114-115.

III

ECONOMIC PROBLEMS DURING THE WAR AND AFTERWARD

BY ALEXANDER D. NOYES¹

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Historic Precedents.—When one asks how many of the economic innovations and expedients of this war—some of them all but revolutionary in character, and all of them marking an immense change in the world's financial and industrial organism—are likely to be purely temporary, limited to the period of war, and how many will find permanent lodgment in that organism, the question is extremely difficult to answer. Some of the innovations of the present period were introduced in the time of our Civil War—government control of railways, for instance, and irredeemable paper; but all these turned out not to be permanent. Some were introduced during the Napoleonic wars, such as suspension of gold payments on the paper currencies and subsidies by one belligerent government to its allies. These also turned out to have been of temporary character, though it is to be observed that England's advances of money to her allies were never repaid and for the most part were never intended to be repaid.

Profound Changes of the Period.—But the outstanding fact of this present war, a consequence not only of its worldwide scope and prodigious cost but of the extreme complexity of the finan-

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cial, commercial, and economic machinery which was disorganized by it, is the far-reaching character both of the economic changes necessarily brought about by it and of the political and social changes. It is a well-worn assertion that the world which emerges from this war will not be the world which entered it. That conclusion, indeed, even if based merely on the changes wrought by the war itself, might be emphasized by remembering the very prevalent conviction among thinking men, before the war broke out, that many practices and institutions, long familiar in our social and economic system, were even then on the verge of a more or less radical reorganization. In politics this tendency was manifest in England as in America, and it is by no means impossible that the ruling party in Germany plunged the country into war in 1914 in order to avert such political and social changes.

Government Control.—Undoubtedly the most fundamental economic change which has occurred during this war has been the worldwide assertion of public control of industry by the government, and, in some cases, direct governmental administration of industry. In such fields as control or prohibition of new security issues and regulation of foreign exchange business—not to mention loans by governments to allied governments—this governmental intervention has affected finance as well as industry. The question first in importance is, how far these changes or any of them are to be permanent.

In attempting to answer such a question, under the quite unprecedented circumstances in which the world will emerge from this present war, it is possible to state only probabilities: there are few absolute certainties. To what extent, for instance, the theories of state socialism will be reinforced as practical political proposals by these wartime experiments in direct government control or administration of industry will necessarily depend in large degree on the results of such government operation—its efficiency, economy, and practical achievement as compared with results under private operation before the war. In England it has been widely asserted already that dissatisfaction is so general at the intervention and interference by the state, among both employers and workingmen, that demand for a permanent system of

the sort is moribund. But the test is by no means over, either in England or in this country.

On the face of things, it would seem probable at the moment that some considerable degree of governmental regulation of prices and of speculation in commodities (notably foodstuffs) would be permanent after the war. Even before the war there had developed a pretty strong political tendency in that direction, and the conditions which have made such regulation imperative in wartime, here as in Europe, will not disappear for at least a very considerable period after the return of peace. Some of the regulation which has been the subject of experiment in this war will quite possibly never be relinquished. The revised basis of taxation, especially as concerns the graduated burden on progressively increasing incomes, is not at all likely to be abandoned. Such altered relations as have come about between capital and labor will hardly disappear with the conclusion of the war.

The Railways.—For at least a considerable period after the war is over governmental control of railways will undoubtedly continue—in this country and in England. It has been correctly said that the problems of demobilization will be in many respects as formidable as the problems of mobilization and will equally require the exercise of paramount governmental power over transportation. Furthermore, the problems of readjusting financial relations between the railways and the Government and of bringing earnings, expenses, and wages into normal relations with one another will be of a character requiring time for their settlement. To throw the railways back into private hands with all these problems untouched would be to invite chaos. The Railway Control Act in the United States stipulates return of the railways to private ownership within one year and nine months of the conclusion of peace. But a future Congress will be entirely at liberty to rescind that proviso, and the question of permanent government operation will certainly be discussed, in and out of Congress, after the war. That the railways will in any case be surrendered to private ownership only on the basis of a different and perhaps closer governmental supervision than heretofore is very generally admitted, even by railway men themselves.

The Currency.—The problem of the currencies will confront all the nations, during many years after the war. It will be a paramount problem, especially in those European countries where the paper money is already relatively depreciated and where its retirement in quantity would inevitably reduce the general level of inflated prices. From this problem the United States will perhaps be as free as any other belligerent. But we are not likely to escape it entirely, for much of our own currency expansion has been on lines not originally contemplated by the framers of the Federal Reserve Act.

International Commerce.—In what measure governmental regulation of international trade and foreign exchange will continue after the war it is also difficult to predict—especially as it is only by our Government's extensive advances of credit here that the market for exchange on our principal European Allies has been kept from great and continuous demoralization. The recurrent suggestion of an "economic war after war," as a punishment to Germany, may not be realized; but either that policy or a policy of exclusion from trade privileges, applied to nations which should refuse to join a future League of Peace, would assume continuance of governmental intervention in the channels of foreign commerce. In any case we shall have to meet the immense and as yet very obscure problems of the changes which the war itself will have brought in the relations between the world's great markets. The character and methods of the competition which may be witnessed between the world's producing and exporting communities after peace returns may go far to determine the Government's own position—not less so, in our own case, because the once familiar recruiting of the American labor market through immigration from Europe will not improbably be forestalled after this war by governmental prohibition on the emigration of laborers from the various European countries.

Disposition of Interallied Advances.—Such war-time expedients as government shipbuilding and governmental restriction on food consumption would naturally be abandoned at once with the ending of the war. So would the making of advances by our Government to other nations—unless, indeed, such advances were to take the form of relief to northern France, Belgium, or

other helpless communities among our present Allies. But the advances already made will undoubtedly affect our financial organism for a good while after the return of peace, because the obligations of foreign Governments held by our Treasury against the advances made will hereafter have to be disposed of in some way—possibly through the sale on the market of equivalent amounts of their own securities by those Governments, which would redeem the pledged obligations with the proceeds of the sale; possibly through the sale on the market of the obligations themselves by our Treasury. The latter expedient, however, will be permissible (under the existing act of Congress) only in case of a sale at par, the purchase price. In what way and with what results either of these expedients would be adopted, when England in the middle of 1918 held \$7,000,000,000 and the United States \$5,500,000,000 of such securities, when every great market will already be loaded with war loans, and when the demands of industry on capital will be urgent in proportion to its long exclusion from the market for securities—this will be one of the most interesting problems of the financial future.

A Moot Question.—Certainly not less interesting will be the very obscure problem of ascertaining the effect, on future industrial enterprise and financial development, of that prodigious waste and exhaustion of real capital, for purely destructive purposes, which has distinguished this war as it has distinguished no other war in human history.

IV

THE AMERICAN OF TO-MORROW

BY GEORGE W. PERKINS ¹

Financier

Profound Changes and a New Outlook.—One of the greatest stumbling blocks to progress is the human inclination to follow precedent and old methods too closely. Men of all periods have found it difficult to strike out along entirely new lines.

Thomas Jefferson, in his old age, wrote a letter in which he said:

“Some men ascribe to the men of the preceding age a wisdom more than human and suppose what they did to be beyond amendment. I knew that age [of the Revolution] well. I belonged to it and labored with it. It deserved well of its country. It was very like the present, but without the experience of the present; and forty years of experience is worth a century of book reading; and this they would say themselves were they to arise from the dead.”

The changes that occurred from the close of the Revolutionary War to Jefferson's old age evidently had been so great as to make a deep impression on his mind; yet, as we look back at them from this distance, they seem infinitesimal when compared with the changes that have taken place in the world during the last quarter of a century and the rapid and tremendous changes that are taking place now.

The advance in science, in intercommunication, in universal

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education—these are the three great factors which are accountable for the stupendous progress this country has made in the last twenty-five years. They have swept away old precedents, old customs, and they will eventually sweep away many of the laws now on our statute books. The man of to-day who does not fully comprehend all this is doomed to be a national obstacle; the man who does comprehend it and who prepares to reckon with the accomplishments already achieved by these three great agencies of progress and with those they are destined to achieve in the immediate future will have taken a long stride toward advancing the progress of the country.

Recollections of the Passing Order.—It is not many years since I was a lad, and yet at that time there was no such thing as a telephone; the telegraph was in very meager use; fast express trains did not exist; it took several weeks to cross the ocean; and the only flying machine we knew about was the much derided one existing in the vivid imagination of Darius Green.

At the time that Abraham Lincoln was President of the United States it took four days or more for a letter to travel from his home in Illinois to New York. And yet only a few weeks ago a young woman, unaided and alone, traveled in an airplane from Chicago to New York in eight hours and fifty minutes.

We are just entering a new electrical world, where everything is done on the instant, as it were, through the use of that strange and mighty force of which we know so little and which we call electricity. Our fathers had none of the modern machinery with which social and business intercourse is now carried on. Their sons, the men of to-day, are wrestling with the problem of finding how to use these new methods of intercommunication and still adhere to the legal enactments, the precedents, the book learning that existed in the days of their fathers.

A Problem of Adjustment.—This is our great problem to-day. It is a difficult, a complicated one, and it is causing a struggle of titanic proportions—a struggle to throw off in a night, as it were, the precedents of an old world for the realities of a new. We have been slow to realize the mighty change that has come upon the world and have found it difficult to adjust ourselves to the new conditions in which we have been placed.

Precedent makes cowards of us all. It is so much easier to go on with things as they are than to strike out along new lines. But the educator, the scientist, and the inventor have left us no choice. We cannot follow old precedents if we would. We must adjust our thought and action to new conditions.

The changes of the past twenty-five years, socially, industrially, and economically, have been great; yet I believe they are infinitesimal compared to the changes which are coming and to which the young men of to-day will have to adjust themselves during the next quarter of a century. I believe the coming changes are going to deal most largely with the relations of man to man. In this country, especially during the last half-century, we have been living in an age of the utmost freedom to the individual. It has been the individualistic period, when the order of the day has seemed to be "every fellow for himself and the devil take the hindmost." We have gloried in the freedom of the individual and have practiced this freedom to a point where, in many phases of our life, it has amounted to license to do almost anything that pleased the individual, or that brought him profit or renown, without regard to its effect on his fellowmen. This sort of freedom has literally run riot in our country and has brought on direful abuses.

Powers of the Individual, Enlarged by Science, Need Regulation.—In the early days of our country, when instantaneous intercommunication did not exist, when education was meager and science undeveloped, what the individual did was of comparatively small consequence, for his good deeds or his bad deeds did not reach very far and therefore did not affect many people. But to-day, with intercommunication drawing the world together in one centralized community, the act of the individual can affect a large number of people; therefore, freedom that is simply another expression for license to do as one pleases can no longer be tolerated.

When I was a boy, there was no Society for the Prevention of Cruelty to Animals, and any one who might have suggested that a man could not whip his horse as much as he pleased would have been ridiculed. Indeed, in those days people hardly questioned the right of a man to beat his own child as much as he pleased.

In the days when we were all driving horses there was no

speed limit and a man did not have to procure a license. This was because he could not at best drive fast enough to seriously endanger other people, and also because he did not need much knowledge to drive a horse. Since the advent of the automobile, with its rapidity and the complicated nature of its operation, it has become necessary, in order to protect other people, to require that the man who operates an automobile learn first how to operate it and second to operate it at a moderate rate of speed.

Countless other instances of a similar nature, which will readily come to mind, all show that society is finding it necessary to take away a certain amount of what has hitherto been called the freedom of the individual: it has been necessary to circumscribe it, regulate it, and control it for the protection or benefit of society as a whole. In my judgment this tendency is only in its infancy, and the American of to-morrow is going to be confronted with a further development of it.

Relation of Labor and Capital.—Take the great question of capital and labor. The freedom of the business man to do as he individually pleases is now being seriously challenged. Indeed, one of the chief qualifications for a manager of a large business concern is rapidly coming to be the ability to adjust differences between capital and labor and to understand the correct relationship of one to the other. Until recent years little broad thinking was given to this problem, and differences arising between capital and labor were settled on the basis of "Might makes right." If the business manager was strong enough he ground the very last cent out of his laboring men and obliged them to work in surroundings that were injurious to life and limb. If labor was strong enough it used its power to strike for higher wages and sometimes to destroy property.

All this is rapidly changing, and we are entering a new period of relationship between capital and labor. In the long ago this relationship was that of owner and slave; then came the period of master and man; then the period of employer and employee, each period being a decided step forward. I believe that we are just now entering a period of copartnership, when the tool user will be part tool owner and when capital and labor will share

more equitably in the profits of the business in which they are jointly engaged.

This advance is inevitable because of our educational system, which teaches the working man to think, to reason for himself.

It is inevitable because intercommunication has told the working men in one community what the working men in other communities are striving for and achieving.

It is inevitable because it gives stability to business and because it is as advantageous to capital as to labor.

It is inevitable because strikes and lockouts can never be settled satisfactorily or permanently by merely raising a man's wages; for, as a matter of fact, when a working man strikes it is not merely to secure an increase in his wage: that is what the newspapers tell us the trouble is all about, and that is what he asks for, but way down underneath, what he is really striking for is a larger percentage of the profits of the business in which he is engaged. He may not realize this; it may not take just this form in his mind when he strikes, but, subconsciously, at least, this is precisely what he is doing. No mere increase in wages, therefore, can ever satisfactorily solve this problem. It can be solved only on the basis of profit sharing. By profit sharing I do not mean bonus giving. I mean actual profit sharing based on the earnings of the business, with a fair percentage to capital and a fair percentage to labor after ordinary wages and interest have been earned. Profit sharing can be practiced satisfactorily only when the business concern makes its transactions public, so that the laborer and the stockholder can know as much about the business as the manager himself. In the adjustment of difficulties between capital and labor I am confident that open books will accomplish much more than open shops.

Wanted—A New Heart and a New Spirit.—In this very question of the relationship between capital and labor, we find that a great upsetting of precedents is taking place. This is because our precedents, our laws, our practices have been founded largely on the proposition of individual freedom, on the right of the individual to deport himself about as he chose. The changes that are taking place are far-reaching and fundamental. Can we successfully approach them from the same point of view as our fathers, who lived in a strictly individualistic age? Can we ap-

proach them from the knowledge we have gained from law books that were written in the individualistic age? If we do, we shall be combating the mighty onward rush of new thought and new conditions provided in large measure by the scientist, the educator, the inventor.

If we decide that the individualistic period is rapidly passing, that the freedom of the individual must be more and more curtailed for the benefit of society as a whole, what is the outlook? Is it a sad, pessimistic future that unfolds? Does life hardly seem worth living under such conditions, or does it hold out an optimistic future, with finer opportunities and more worth-while goals? To my mind it all depends on how thoroughly you analyze the situation and what you believe the goal of the man of the future should be and is going to be.

Past and Future—A Contrast.—Let me see if I can picture it as I see it. First, just a glimpse into the past. The individualistic period in which we have been living, coupled with the great and rapid development in intercommunication, quickly brought great fortunes to individuals. Money-making has been the one, all-absorbing occupation in this country for the last forty years. About the only goal we have had has been the almighty dollar. The first question asked when a man dies is "How much was he worth?" with scarcely a thought as to how much he did for his community or his country. If he did anything for his country or his community, he did it in his will by leaving a certain amount of money to charity. He did not do it by rendering public service or by giving of himself or of his time. There has been very little of this sort of service performed in the United States by men of ability during the past twenty-five years.

Have the men who have lived and worked simply to acquire great fortunes obtained peace of mind, happiness, and honor in the operation? How many of them could answer yes? A very small fraction. Has the country been benefited by the course they have taken? A very large majority of our countrymen would answer no. On the whole, the individualistic age has not been a success, either for the individual, for the community in which he has lived, or for the nation. This period is passing away. We are, beyond question, entering upon a period where the welfare of the community takes precedence over the interests

of the individual, and where the liberty of the individual will be more and more circumscribed for the benefit of the community as a whole. The individual's activities will hereafter be required to be used not only for the enjoyment, comfort, and pecuniary reward of himself, but for that of his fellowmen as well. To my mind there is nothing in the signs of the times so certain as this. I believe the sooner the man of the future understands this, accepts it, and prepares to shape his own course accordingly, the more successful his career will be, the better off his country will be, the happier he and every one else will be.

Our only decoration—the almighty dollar—is not as highly prized as it used to be. The man of exceptional ability, of more than ordinary talent, will hereafter look for his rewards, for his honors, not in one direction but in two—first and foremost, in some public work accomplished, and second in wealth acquired. In place of having it said of him at his death that he left so and so many hundred thousand dollars, it will be said that he rendered a certain amount of public service and incidentally left a certain amount of money. Such a goal will prove a far greater satisfaction to him, he will live a more rational, worth-while life, and he will be doing his share to provide a better country in which to live.

In my judgment the fashion of acquiring wealth simply for the sake of possessing it has about reached its greatest height, and the fashion of performing public service for the sake of its performance is coming into vogue. If I am right, then the problem of the man of the future is not how he can acquire a very large personal fortune, but how he can acquire a competency and at the same time fit himself to be an all-round citizen and render some worth-while public service.

Basis of Belief in the New Order.—I have these reasons for believing that future conditions will be as I have briefly sketched them:

First, because the world is being drawn together in one centralized community through the wonderful development in science and the marvelous work of the inventor.

Second, because the great European war is every day shattering old precedents, customs, and methods. It is striking down individualism and building up collectivism. It is leveling class

distinctions and recognizing in every direction that the rights of one must give way to the rights of many. Aside from the awful tragedy of the war, nothing is so startling as the social and economic changes that the war is bringing to Europe, many of which will undoubtedly remain after the war is over. It behooves us to take full notice of this great economic revolution, lest when the war is over we find that Europe is the new world and our country the old world.

Third, because in our country especially we are entering upon a new stage of development which calls loudly for men who will render disinterested public service.

While our country was new and was being developed, while we had millions of acres of new fertile land, mines of all kinds of precious metals just being opened up, and great virgin forests, it did not so much matter how extravagantly our national, state, and city governments were administered. It did not so much matter whether or not we saved the pennies, for we were living in a new, rich land. In recent years all this has changed. There is little more new land; our mineral wealth has been very largely located and opened up; our forests have been denuded. We are now reaching the point where we must conserve our resources. We face new conditions, and in order to survive and succeed we shall require a different class of public service from that which we have been getting.

Universal Training for Service.—One reason why I am strongly for universal military training is that it is the best method I know to develop in the youth a sense of all-round responsibility to his country. It teaches him that he owes something to the community, not only in time of war but in time of peace, and, as a result, if when he reaches manhood he is called to public service in time of peace, he is much more apt to be a faithful, conscientious servant than if he had not had military training. He enters public service in time of peace in more nearly the same spirit that he would enter military service in time of war—from a sense of patriotic duty and a desire to serve his country and his fellowmen.

Centralization and Responsibility.—If our Government is to endure, if our country is to prosper, if we are to take our proper

place among the nations of the world in the new civilization that is upon us, the man of the future must live not for himself alone but for others. If he is one whom the Creator has endowed with more than ordinary ability, he must realize that his extra ability has not been given to him to be used for selfish purposes but to be used, at least in part, for the benefit of his brothers. While this is by no means a new idea, it is presented to us to-day with new and striking force through the centralizing processes that are going on in the world, by which men are being thrown into such intimate contact with each other that consideration for each other is being forced on the attention of all and is speedily becoming a social, industrial, and economic necessity.

Look in whatever direction you may and you will find that centralization is the order of the day. The telegraph, the telephone, the automobile, and the airship are the causes. They have wiped out not only old precedents and customs but state and national lines as well. A man living in Boston who wishes to talk to a man living in San Francisco no longer has to consume a week traveling clear across the country in order to do so. He simply rings a bell, puts a little instrument to his ear, and proceeds to talk to the man in San Francisco. There is hardly a miracle in the Bible more wonderful than this.

The New Nationalism.—The miraculous changes of recent years have affected politics in just as profound a manner as they have affected business and social relations. The doctrine of States Rights is being rapidly demolished. The Nation is being obliged to assume many of the functions of government heretofore performed by the states and this tendency is growing, not receding. Precedents in all such matters are going by the board with great rapidity. The state, viewed as an individual with the right to do as it pleases within itself, without regard for other states, can no longer be tolerated, because what one state legislates to-day may affect not only the people of that state but those of other states also. Only the Nation can act in matters that affect interstate relations, and with intercommunication and transportation developed to their present stage a considerable percentage of a state's activities are interstate in their effects and consequences. We must, therefore, take on a new nationalism.

The New Internationalism.—Not only this but we must take on a new internationalism. The world has been drawn very closely together by the cable and the trans-oceanic liner, but it is on the verge of being drawn infinitely more closely together by the wireless, the airship, and the submarine telephone. When these wonders are in full working order, when they become practical, every-day instruments of intercommunication and transportation, then the social practices and the industrial methods of one nation will quickly and seriously affect the social relations and industrial practices of all other nations, and this will require the yielding by nations of certain of their individualistic rights and prerogatives in order to safeguard and benefit the world as a whole.

This opens up a great new vista: it presents problems that are intensely interesting and of far-reaching importance. These problems are being met in part by those of us who are to-day passing the meridian of life. They will confront the American of to-morrow with tremendous force.

The Man of the Future.—In my judgment the period that is upon us offers large opportunities for individual thought, initiative, and action. It calls for original thinking, for constructive work, for courageous statesmanship. The opportunities that present themselves are most alluring. Men of sober minds, clean, healthy bodies, and staunch courage will find a myriad of opportunities to make distinctive places for themselves in the great new period upon which we are just entering and which carries so much promise for humanity.

The political party that fails to recognize all this will fail at the polls. It is not enough in these days to appeal to the people on the principles on which a party was established a half-century ago, or on what it accomplished for the country twenty-five years ago. The people are no longer interested in what happened yesterday. Their whole interest is centered on what is going to happen to-morrow. They are looking for leaders with vision, with courage, with constructive statesmanship, and the party with such leaders and such statesmanship is the party to which the people are going, regardless of its name or its traditions.

A reconstruction period is at hand. It is not simply local, nor is it merely national; it is international, worldwide. The

mighty changes that are taking place in Europe tell us this with unmistakable voices. The man of the future must realize all this. He must be ready to adjust himself to the new conditions that are crowding upon us. He must have sufficient vision, intelligence, and courage to cast aside the methods and precedents of a bygone age and strike out boldly along new lines. He must not look backward but forward. Not the spell of the setting of yester's sun, but the vision of the dawn of a new day—~~that~~ is the inspiration of the American of to-morrow.

PART II

EFFICIENCY IN PRODUCTION

V

OUR MINERAL RESERVES

BY GEORGE OTIS SMITH¹

Director, U. S. Geological Survey

INTRODUCTION

Minerals the Foundation of the Nation's Industry.—"Foundations of power" is the finely descriptive term applied by Secretary of the Interior Lane to the Nation's mineral resources. This term not only expresses the essential value of minerals to mankind in the present day but recalls the significant fact that a mineral name has been given to each step in the evolution of society—the stone age, the copper age, the bronze age, the iron age, and finally the coal age in which we of the Twentieth Century live.

Even another early recognition of the value of mineral deposits as a source of wealth and power is seen in the reservation to the sovereign of certain rights in their ownership, the trace of which remains in our technical word "royalty." To-day, however, the broader view of mineral resources as a national asset comprehends not merely their value as a source of governmental revenue, as a type of private property specially adapted to direct taxation, but rather their higher value as quasi-public property, the public interest in which lies in their wise use as the basis of industrial development. The idea of "royalty" as a tax to benefit the sovereign has given place to the social idea of opportunity for profit-

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able work in which labor, capital, and engineering all share. As raw materials, the mineral resources of the United States form the foundation of the Nation's industry.

Strategic Value of Industrial Independence.—National welfare and efficiency require that the supply of raw materials, whether foodstuffs for man and beast or fuels and metals for industry, must not only be adequate for even emergency demands but must not be subject to interruption. Herein lies the advantage, strategic in time of peace as well as of war, of a self-contained and self-determined state—one that is industrially independent to a large degree, because it possesses and utilizes great natural resources. Compare the dependence of England upon countries overseas for wheat, cotton, and copper, for instance, with the independence of the United States, which exports all these, as well as other foodstuffs and metals. England's chief raw material available for export is coal, but most of the wheat she needs at home is imported—and nearly as much from non-British countries as from Canada, India, and Australia. In times of peace, too, 90 per cent of her sugar came from foreign countries. Moreover, it is true that Germany's persistent and largely successful attempts to control the metal supply of the world even included the control of that from the British Empire.²

America's Leadership in Mineral Production.—The commanding economic position of the United States to-day has been largely determined by the variety and the size of its mines, and its future position as a world power is guaranteed by the extent of its mineral deposits that are now unutilized or only partly developed. No other nation approaches the United States in mining activity, nor is any other country of the world believed to possess greater reserves of the minerals essential to present-day civilization.

Even a glance at the world statistics of mineral production for the year 1913 makes plain America's leadership in time of peace. This country's contribution to the world total in that year was:

Petroleum	64.6%	Bauxite	39.8%
Copper	55.7	Coal	38.6
Phosphate.....	43.1	Molybdenum	37.6
Sulphur	42.9	Zinc	37.2

² "Resources of the Empire," J. Watson Grice, International Information Committee, London, 1917.

OUR MINERAL RESERVES

61

Iron ore	35.6%	Salt	20.5%
Lead	34.3	Gold	19.5
Vanadium	33.3	Tungsten	17.4
Silver	29.8	Mercury	17.2
Sheet mica	23.	Arsenic	15.6

The United States' output of natural gas, which though not an exportable raw material furnishes the fuel for important industries, was nearly 95 per cent of the world consumption.

WAR ADJUSTMENTS

The New Demand for Raw Material of Domestic Origin.—In August, 1914, Secretary Lane,³ in an interview, pointed out in a prophetic way the adjustments in world commerce and domestic industry that must necessarily result from the European war, then just begun. As then stated, interruption of the flow of importations of raw materials in which the country is not already independent must be overcome by the development of neglected domestic mineral resources, and new demands from the world's markets and the home consumers for other mineral products must be met by speeding up American production. Now, after nearly four years, the process of adjustment is still going on, but the results already afford some measure of the increased industrial independence attained and suggest what further progress may and may not be expected. An examination of balance sheets indicates what we possess in quick assets, and other data can be added to show roughly our ultimate resources.

Increased Demand for Power.—The war-time test of great industrial expansion has, in the words of the editor of a technical journal,⁴ made the world "power hungry." Not only have France, robbed of her coal resources, and Italy, lacking coal of her own, turned to the unharnessed mountain streams for power, but America, unable to meet fully the increased demand for steam coal and fuel oil, has both hastened new hydroelectric development and also forced the issue of interconnecting power systems. The pooling of power capacity of plants already installed has become a matter for State and Federal action, because the interest of the public in the high efficiency and economy

³ Quoted in part in U. S. Geol. Survey Bull. 599, pp. 6, 7, 1914.

⁴ *Electrical Review*, March 9, 1918, p. 420.

that can be gained by operation in large units takes precedence over any private or corporate rights in the individual plants.⁵ A public utility must be such in fact as well as in name.

War-time Test of the Mineral Industry.—No more severe war-time test of the mining industry can be cited than that imposed by the largely increased demand for fuels. In petroleum the wells in 1917 yielded an increase of more than one-sixth over the normal production of the years immediately preceding 1914. In bituminous coal the total shipments in 1917 were 8 per cent larger than for the preceding year and 25 per cent larger than at the beginning of the European war. The output of anthracite in 1917 was also largely in excess of all previous records—14 per cent more than in 1916. Yet these increases in supply were insufficient to meet the demand, and the net result was serious and widespread embarrassment to all industry.

Fortunately statistics are available on which to base an analysis of the recent shortage in bituminous coal production.⁶ The weekly returns show that the coal-mine capacity was at all times sufficient to meet the demands of even so exceptional a year as 1917, but unfortunately the average daily production for the 10 months—from June, 1917, to March, 1918—was only 71.36 per cent of the average capacity. The low record for this period was 55.8 per cent, in the week ended January 19, and the highest percentage of efficiency 79.8, in the week of September 8, when car shortage, labor shortage, and mine disability were of approximately equal weight in causing the 20 per cent lost time at the mines. It is noteworthy, too, that this maximum efficiency was reached when the percentage of lost time due to car shortage was at its minimum, while in the week of minimum efficiency car shortage was similarly at its maximum in contributing to lost time. Too broad generalizations should not be drawn from this

⁵ This subject was discussed by the author before the Second Pan-American Scientific Congress, Washington, December 28, 1915. "The People's Interest in Water-power Resources": U. S. Geol. Survey Water-Supply Paper 400, p. 2, 1916.

⁶ Weekly statements issued by the U. S. Geol. Survey and published by the technical press give the average daily production of bituminous coal and coke and analyze working conditions at 5,100 mines as reported by the operators.

statement of conditions, for throughout the period mentioned there were contributing causes other than transportation shortage. If the average daily production, however, had been raised to the highest rate actually maintained for a week, the country's soft-coal output in 1917 would have met the year's great demand; in other words, the outstanding fact is that there was ample plant capacity, allowing even a margin for lost time from various causes. More mines would not have produced more coal.

Increased Output of Metals.—The analysis of the adverse conditions with which the coal industry has contended applies in part to the mining and smelting of the metals. Yet the new records of output that have been made furnish an encouraging response to this war-time test. Of the metals in common use derived from domestic ores, both zinc and aluminum have nearly doubled in output since the war began, copper has increased more than 50 per cent, lead nearly 40 per cent, and iron nearly 25 per cent. Expressed in percentages these gains are impressive, but a statement of the tonnage of metal represented by these increases gives a true measure of the activity of mine and smelter as well as of the added burden placed upon the railroads in these years of industrial expansion. Last year America's contribution of these five essential metals amounted to nearly 10 million tons more than the normal output of the years immediately preceding the war. This increased output of metals of course represents more than four times this tonnage in ores mined and handled, and if to this is added the 74 million additional tons of coal mined, we begin to realize what has been involved in adjusting the country's industry to war-time conditions. As a means of visualizing this increased tonnage of coal and ore, the figures may be reduced to carloads, giving as the result more than two million heavily loaded cars of the largest capacity. Yet this was simply one part of the increased burden that our transportation system had to handle last year as compared with the normal year. Much of the ore was moved only short distances to mill or smelter, but most of the resulting metal was shipped half across the continent, and most of this traffic, whether in metal or fuel, was east-bound. Such

64 AMERICAN PROBLEMS OF RECONSTRUCTION

a test must be expected to reveal weak points, but the result is prophetic of America's productive capacity in raw materials.

PRESENT DEGREE OF INDEPENDENCE

Substitution of Domestic Products for Imports.—No nation can or ought to be absolutely self-contained, and for markets and ocean transportation the United States is largely dependent upon other nations; yet in its possession of raw materials this country is independent to a unique degree. In 1913 out of 31 principal mineral products which may be regarded as most essential the United States led the world in the output of 13, whereas the British Empire led in 6, and Germany and Austria in only 3. Of 3 of these products the United States had practically no output, the British Empire was similarly deficient in 4, and Germany in 11. The extent of the reserves of the United States will be shown on pages 66-70, but it is well to note here in more detail the extent to which this great national wealth can be regarded as quick assets. with which to meet any emergency.

Percentage of Consumption Met by Domestic Production.—The simplest method of presenting the facts of the nation's present independence in mineral supplies is to state the percentage of consumption met by domestic production.

In the following list of metals and non-metalliferous mineral products index figures above 100 show that a surplus is available for export, and figures below 100 indicate that imports are necessary to meet the present needs of the country. For the metals the figures given are based on primary metal. In the case of graphite the figure given is for all grades, whereas for crucible grades the index should be only 11. The statistics on which these tables are based are for the year 1917.

Metals

Aluminum	124	Manganese ore.....	32
Antimony	10	Nickel	3
Chromite	37	Platinum and allied metals	13
Copper	213	Quicksilver	120
Iron ore.....	100	Tin	0.13
Lead	124	Tungsten ore	65
Zinc	165		

Non-metalliferous Minerals

Abrasives (emery and corundum)	90	Graphite	25
Asbestos	1.3	Gypsum	93
Asphalt and bitumens.....	92	Magnesite	90
Barite	100	Mica	38
Borax (crude).....	100	Nitrates	0
Bromine	100 +	Petroleum	93
Cement	102	Phosphate rock	104
Coal	100	Potash	12.8
Feldspar	89	Pyrite	33
Fluorspar	94	Salt	101
Fuller's earth	82	Sulphur	105

Outstanding Deficiencies.—The figures just given to show the production-consumption ratio not only express the extent of independence we have already attained; they exhibit our present deficiencies. Most of the “war minerals” (so called for their newly realized importance), however, are those with which the whole world is scantily supplied.

In metals the United States is poorest in tin, platinum, and nickel. The domestic production of tin and platinum is less than 1 per cent of our needs, and there is little of promise in known resources even if some increase of production can be expected, although the hunt for these metals is being continued by the Government. Nickel, on the contrary, is obtained as a by-product from copper ores of domestic origin, and although the quantity thus recovered has naturally more than doubled since the war began, the domestic requirements have about trebled. Even a much higher price would not more than double the present output. In several States there are small deposits of nickel ore, a few of which have been worked in the past, so that in time of emergency high-cost nickel could be produced within the United States for a short period.

The deficiencies in potash salts and nitrates present more hopeful problems. Although no commercial deposits of nitrates have been discovered, fixation-nitrogen and by-product nitrates can be provided in sufficient amount to meet all needs that can pay the higher price. Already the high price quoted for potash has developed recovery from brines, industrial wastes, kelp, and cement-kiln fumes sufficient in 1917 to meet one-eighth of the normal demand and more than three times the 1916 domestic output. The largest supply of potash brine, at Searles Lake,

California, is estimated to contain 10 million tons of pure potash (K_2O), or 40 times the annual consumption in the period before the war.

EXTENT OF RESERVES

America's Future Strength.—It is important to survey the mineral reserves behind the line—using the military metaphor—and to plan for the future with a full knowledge of the strength of these reserves and of the extent to which they are readily available to meet any shock of emergency. Possibly the records of the last few years furnish the best testimony on the latter point, and indeed the remarkable response of the mines to the call from our Allies for help as well as to the call from our own industries has increased our faith in America's reserves. Present achievement thus furnishes some index to future capacity.

Distribution of Resources.—America's mineral resources are widely distributed: 31 States shipped coal last year, 18 States produced oil, 24 States mined iron ore, 23 States produced copper ore, and 21 lead and zinc ores. And to emphasize the lack of localization of this mineral wealth, the leadership in production is divided between Pennsylvania in coal, Arizona in copper, Minnesota in iron, Oklahoma in oil, and Missouri in lead and zinc. Although the transportation of fuel may seem the Nation's greatest task in the distribution of raw material, it should be realized that the New England States and California are the only States that do not either contain large deposits of coal or lie contiguous to coal States.

This distribution of raw materials over the length and breadth of the country has tended to prevent geographic centralization of industry.⁷ Thus the preëminence of Pennsylvania as a producer of raw materials has been less marked each year. So, too, the center of coal production must surely continue to move westward toward the geographic center of the nation's coal reserves.

Estimated Supplies of Essential Minerals.—First to be considered in any inventory of raw materials is the Nation's supply

⁷For discussion of this topic by the writer see "Distribution of Industrial Opportunities": Trans. of Am. Inst. of Chem. Engrs., vol. 7, pp. 8-15, 1914; *Jour. Ind. and Eng. Chem.*, vol. 6, p. 67, 1915.

of mineral fuel. The latest estimates⁸ of the content of the coal fields of the United States proper yield figures in terms of millions of millions of tons—3,538,554,000,000 at the close of 1914. To this impressive total should be added an estimate for Alaska, which can not be given with the same detail that is possible for the States yet perhaps with an approximate accuracy comparable with that of the estimates that have been made for Siberia or China. A conservative estimate⁹ of the coal in the several Alaskan fields that have already been explored geologically is 15,000,000,000 tons.

A statement of the Secretary of the Interior to the Senate in February, 1916,¹⁰ estimated the extent to which the ten oil fields of the United States are becoming exhausted as ranging from 2 per cent for Wyoming and Montana to 93 per cent for the Lima-Indiana field. The petroleum remaining in the ten fields was estimated as 7,629,000,000 barrels. Recently the Federal geologists who made these estimates have reviewed all the available data, including the results of two years of work, and reduced the estimated amount remaining to less than six billion barrels at the beginning of 1918. The estimates by fields as of January 1, 1917, are as follows:

TOTAL OIL REMAINING IN THE GROUND IN THE UNITED STATES AND ALASKA,
JANUARY 1, 1917

Appalachian	560,744,000
Lima-Indiana	43,000,000
Illinois	200,000,000
Mid-Continent	1,730,000,000
North Texas	134,000,000
Northwest Louisiana	106,333,000
Gulf coast	734,850,000
Colorado	6,000,000
Wyoming	230,000,000
California	2,256,000,000
Other States and Alaska.....	181,000,000
	<hr/>
	6,181,927,000

Of this total, over 10 per cent is believed to be publicly owned, including about 4 per cent in the naval reserves.

⁸ M. R. Campbell: "Coal Fields of the United States": U. S. Geol. Survey Prof. Paper 100-A, 1917.

⁹ U. S. Geol. Survey Bull. 394, p. 182, 1909.

¹⁰ 64th Cong., 1st sess., Sen. Doc. 310, p. 17.

In view of the fact that the present annual output of the oil wells of the United States exceeds one-third of a billion barrels, it is reassuring to remember the vast reserves of oil shale, especially in the West. In Colorado and Utah alone these oil-shale areas cover 5,500 square miles, and their content of high-grade petroleum is estimated at forty billion barrels. This volume is better realized when it is recalled that all the oil that has yet been produced in the United States is but about 3,500,000,000 barrels. Although in Scotland similar shales no richer in oil content have been utilized for more than 50 years, in the United States petroleum in the "oil sands" has hitherto been too plentiful to permit the more expensive recovery of oil from these shales.

Estimates of the Nation's reserves of ores of the essential metals are for the most part even less definite than the estimates for coal and petroleum. The maximum estimate¹¹ of 7½ billion tons of iron ore of present-day commercial grade might be sufficient for only a century at the present rate of consumption, yet every authority on this subject calls attention to the possibility of prolonging the life of these reserves. Professor Leith's judgment is that in the Lake Superior region as much ore will be found in the future as has been found in the past. The annual census of ore mined shows an already large tonnage rapidly increasing each year, and the average metal content slowly decreasing each year, so that together these two factors make any estimate of reserves difficult, and this difficulty is increased by the gratifying fact that at present new discoveries of ore are practically keeping pace with the heavy production. In a word, the geologist and engineer have not yet discovered all the iron ore in the country, nor has the metallurgist reached his limit in utilizing the lower grades of ore.

In estimating the reserves of copper, prediction is even less definite. Professor Lindgren in 1909 stated that each year would find extensions of reserves added to those already discovered, and Professor Emmons in 1916 expressed his opinion that discoveries in new districts might be expected to equal those now

¹¹ Eckel, E. C., "Iron Ores," 1914.

Leith, C. K., "Foundations of National Prosperity," 1917.

Burchard, E. F., "Our Mineral Supplies—Iron": U. S. Geol. Survey Bull. 666-V, 1917.

known. Mr. Butler's explanation of these current gains in reserves is equally optimistic.¹²

Estimates of the United States reserves of other minerals cannot be given in quantitative detail, but the relative position of this country may perhaps be suggested in the following section.

World Position of the United States in Reserves.—The generally accepted statistics for the world's coal resources credit the United States with 52 per cent of the whole.¹³

To this wealth in mineral fuel must be added from one-fourth to one-third of the world's petroleum reserves, not including that to be derived in the future from oil shales, in the possession of which America probably also leads the world.

The more conservative figures for iron-ore reserves credit the United States with more than one-fifth of the total tonnage of ore of present-day commercial grade in the three continents bordering the Atlantic Ocean. The International Geological Congress estimated that the potential reserves are much larger and allotted to the United States 60 per cent of the whole.

Of the other metals, the United States' percentage of world production of copper in 1913 is probably too large to serve as an index of resource strength, as the large deposits of South America had not then become a factor. As an approximate statement, however, one-half of the world reserves may be credited to the United States. For lead and zinc no better estimate can be offered as an index of world position than the percentage expressed by the production of 1913. Since then the zinc reserves of the country have shown themselves to be equal to all demands made upon them.¹⁴

Of other metals, like gold or mercury, the production in 1913 furnishes percentages doubtless much too high to serve as an index of world position in the matter of reserves. In other min-

¹² Lindgren, W., "Resources of the United States in Gold, Silver, Copper, Lead, and Zinc": U. S. Geol. Survey Bull. 394, 1909.

Emmons, W. H., "Conservation of Copper": Pan-American Congress, Washington, 1915-16.

Butler, B. S., "Our Mineral Supplies—Copper": U. S. Geol. Survey Bull. 666-Q, 1917.

¹³ "Coal Resources of the World": International Geological Congress, Canada, 1913.

¹⁴ Siebenthal, C. E., "Our Mineral Supplies—Zinc": U. S. Geol. Survey Bull. 666-Y, 1917.

erals, like phosphate rock, the untouched reserves of the United States are so large as to promise to be a source of national strength for long periods in the future.

AFTER-WAR NEEDS

Vision Necessary Even To-day.—Our supreme endeavor must continue to be to meet with even greater measure of success every demand that the present exigency may put upon American resources; nothing else counts to-day. Man power, however distant from the scene of world conflict, must be "connected up" to carry the "peak load," whether that abnormal demand continues for months or years. Yet without lessening this productive effort in the slightest degree or hesitating for a moment in attaining the maximum efficiency possible, we may render this service with a vision that looks beyond the present crisis. Indeed, as General Sherman expressed it, "war's legitimate object is more perfect peace," and if the industries behind the battle line are to win this war, it is logically a part of the same great project to fit these industries to serve humanity in the time of peace to follow. The only patriotic profiteering is that in which the Nation rather than any corporation, the people more than any individual, may profit through an industrial expansion that possesses a future value as well as present use. "Where there is no vision the people perish."

Readjustment of Mineral Industry.—After the war changes in both world-market and home-market conditions will require readjustments. Wherever competition in supply becomes a factor either better quality of product or cheaper price will again control: the war-time production of quantity regardless of quality or cost can continue only where the demand continues to exceed the supply.

One of the dangers confronting the mineral industry, as it tries to anticipate the needs of the period that will follow the war, arises from the fact that quantity output under the stress of war demand has been in part made possible by reducing development work. Future capacity has been sacrificed to present production, and this necessary evil is increased by the influence of uncertainty. With the high cost of added equipment as a

known factor and the possibility of price fixing of his product as an unknown factor, the mine owner naturally hesitates to take the risk of expanding his plant. From his point of view the future is too uncertain to warrant those expenditures for upkeep and replacement of machinery or for exploration which are necessary to insure the permanency of regular output demanded by his plant.

Improvement in quality, reduction in cost, regularity of output are some of the items that must be considered in the readjustment of the mining industry, to meet the changes in conditions. To illustrate how these ends are to be attained, an object lesson is furnished in the now well-recognized effect of the saloon upon industry. Speeding up production, whether temporarily to supply war demands or permanently to meet economic conditions that may prevail after the war, can be greatly promoted by national prohibition. The testimony of the executives of the largest iron and steel plants, the coal operators of the East, and the mine managers of the West includes specific estimates of increases of 10, 20, or 25 per cent in labor efficiency when the saloon is outlawed.¹⁵ Full recognition of the part played in the prosecution of the war by industrial plants would logically provide for a 5-mile dry zone around each shipyard, steel plant, coal mine, and every other factory or mine producing the materials essential to outfit our soldiers and sailors, just as such zones are established to protect the navy yards and cantonments.

Expansion Justified.—In considering after-war needs, even further expansion of industry seems warranted now. There are certain "key" industries whose products have a national value from their bearing upon other larger industries. This lesson has been learned during the war period, and expansion of industry along every essential line must continue to make the United States more self-sufficient.

When thought is given to the question of international competition in industry after the war, there can be added to the assurance that comes from America's advantage in supply of raw material a confidence based upon the ability of our engineers

¹⁵ Letters of this type are published in the *Manufacturers' Record*, of Dec. 20, 1917, and Feb. 28, 1918.

and the capacity of our labor. The American workman produces more than two or three of his British fellows, and this with shorter hours of labor. Not in one industry alone but in a score or more branches of manufacturing the value of the American worker's product is from two to three times that of the worker in the United Kingdom. The principal reason for this increase in man power is the larger use of machinery in the United States—the utilization of the thermal units of coal and the kilowatts of hydroelectric power to supplement man muscle.

This larger use of natural resources to the advantage of the workers in mill and factory is in turn possible through a corresponding larger output of coal per mine worker in America. Our industries have all profited by this large use of machinery, and the promise of the future, stated in terms of international industry, appears to depend upon cheap power. The number of horsepower used per 1,000 wage earners in America ranges from two to four times the corresponding amount used in the United Kingdom.¹⁶ Further confidence follows when the increase in the productive capacity of the American coal miner is considered. In the period 1900-1916 the average daily output of the employee in the bituminous mines increased from 3 to nearly 4 net tons, and his annual production from 700 tons in 1900 to 896 tons in 1916.¹⁷ It is believed that under the stress of the past year the increase of production of soft coal was accomplished through increased working time of practically the same number of miners employed, while in the anthracite mines the average production both per year and per day probably exceeded any previous record. Contrast with this showing the fact not only of a much smaller average output for the British coal miner—at no time half that of the American worker—but also of a steadily decreasing annual production per miner, and the reason for cheaper coal in the United States is evident, even though wages are higher here than in the British mines.

Whatever the industrial rivalry among nations, our unsurpassed coal reserves, with efficient mining, reinforced by the water-power resources, constitute a strong line of national defense. As

¹⁶ A full exposition of the comparative statistics of production is given by Gray and Turner, in "Eclipse or Empire," London, 1916.

¹⁷ Leshner, C. E., "Mineral Resources of the United States, Coal in 1915," Part A, U. S. Geol. Survey, p. 361; and oral statement.

a national asset cheap power finds its value in this relation to industrial opportunity for the nation's workers.

UTILIZATION OF RESOURCES

Factors Promoting Full Utilization.—Full utilization is the ideal for both the nation and the individual, and into the attainment of this ideal several factors enter. The direct incentive to the producer is his profit, which in turn involves price and extent of market, cost and efficiency of production, certainty of continuance of operation, and finally the equitable distribution of the net proceeds. If these factors are all favorable, full utilization of the deposits of coal or oil or ore must benefit the nation of consumers equally with the smaller groups of producers: their interests are not necessarily antagonistic.

Price and Extent of Market.—The price of a product must of course largely control private production, whether that price is the response to economic law or to some governmental agency. The cut-throat competition between buyers of coal during the first half of 1917, for instance, was just as truly a phenomenon of the law of supply and demand as the cut-throat competition between sellers had been in previous years, and both of these extreme manifestations were disastrous to the public interest. Competitive buying, however, may advance prices only to the normal level necessary to stimulate production to meet the demand; raising prices above that level may do no good, but much harm, from the encouragement thus given to speculative, inefficient, and wasteful production, with costs too high for long-continued operation. Then it is that governmental regulation becomes necessary to determine what price is warranted to make the resources available to the extent of the tonnage required by the public. So too in periods of competitive selling the price may sink below the proper level, and governmental regulation becomes necessary to assure that operation is possible without over-great waste of resources or serious loss to labor and capital.

If the producer alone is considered, price may be either too high or too low to assure efficient utilization of a natural resource. Nor is the truth essentially different from the standpoint of the consumer. In the long run unrestricted competition failed to

benefit the coal consumer. Aggregate costs were increased by idle mines, and there was also too small profit to the average producer. All this favored profiteering when competitive buying actually began, and the newly opened or reopened mines led off in boosting prices.

As the country has also learned in the past year, certainty of supply of fuel is more to be desired than low prices, and indeed, looking back over the years of plenty we may see how cheap coal has developed wasteful consumption. Coal has been cheaper than skilled firemen, with the result that both smoke-stack and ash pile told the story of the lost thermal units. In terms of national economy, which demands full utilization, prices can be too low.

Since it is from the weighted average price received that the producer must figure his profit, it follows that the price to a preferred customer may be excessively low while the general public may be paying a price much too high. To quote different prices to different consumers must be regarded as undemocratic: it is a practice in the same class with secret rebates, and President Wilson's orders under his war powers fixing one price for all will have a beneficial effect upon our industrial system after the war. However prices may be manipulated, the people as a whole must pay the costs.

With price is linked extent of market. Whether industrial expansion is planned with reference to a commanding position in the world market for raw materials or for the manufactured articles derived from metals with the aid of power generated from the mineral fuels, the extent of the market open to the products of American labor will be determined in large measure by price. This fact needs to be kept in mind whenever any tax, direct or indirect, on the mining industry is planned; no handicap must be placed upon any industry that needs to compete in the world market.

Another feature in price regulation that can hardly be over-emphasized is the advantage of keeping the prices of raw material and of manufactured derivative equitably adjusted. Lack of such adjustment has been seen at certain periods in the market prices of gasoline and crude oil. More striking discrepancies in rising prices were observable a year ago in the relative prices of steel plates, pig iron, iron ore, and coke. Measured either by

past records or by present practice, the differential for the manufactured product had increased beyond the bounds of reason, and price fixing by the Government was necessary to restore a just relation of the product to the raw materials. Another illustration can be found in price records of manganese ore and of its derivative ferro-manganese, used in making steel. This instance deserves special consideration, as it is directly connected with the utilization of domestic to replace imported ore. In this as in some other minerals, both price and disposition of the imported ore are more easily manipulated by the middlemen than they could possibly be were there domestic producers in the market strong enough to deal directly with the consumers. Too often the importer levies so heavy a tax on the industry that were an import duty of similar size included in any proposed legislation the consumer would realize the fact of the added item of cost; and yet this importer's profit can in no sense be interpreted as "protection to domestic industry," because his influence has of late been found to be directly opposed to the development of a home supply. Nor is the importer the only middleman to add to the price paid for raw material; instances have been cited where six brokers received commissions on a single ore shipment in its transit from mine to consumer. With price so directly affecting extent of both home and foreign market, the non-productive middleman is to be avoided in securing the full benefit of the Nation's resources.

Engineering Efficiency.—What has already been attained in conservation of labor and material by American engineers constitutes a record of efficiency that is also gratifying in its promise for the future. Faith in large units of production is an essential part of the vision of full utilization.

No socialization of industry based upon this success of "big business" should be proposed that does not pay due regard to the cause of that success—namely, engineering efficiency. Any loss in that efficiency due to absence of sufficient incentive to individual initiative would constitute a bar to the full utilization that profits both producer and consumer. Even the premium put upon efficiency in private business has not always broken down the conservative objection to innovation, and the more costly practice too often has continued. Yet in planning the de-

velopment of the future on any new lines we must face the fact of the relative promptness of decision by private or corporate capital as compared with governmental action. This difference has been repeatedly observed in the past few months in connection with the adjustment of the mining industry to changing conditions, and unfortunately it is more or less inherent in the degree of authority vested in executive officers under a large corporation and the checks put upon action by Government officials of equal if not greater responsibility.

However large our faith in the efficiency of large units, we must not overlook the fact that the larger the corporation the greater the danger of its developing conservatism that may lessen adaptability to changing conditions. Thus the engineering efficiency of some splendid organizations remains that of the previous year and fails to keep in the advance, and so the powerful company often follows when it should lead. In corporations, as in the Government itself, sometimes the purchasing agent rather than the technical man is first consulted; the result is that the discussion revolves around prices rather than directs itself at production and use. Whether it is to meet a war-time exigency or the conditions of peace reconstruction, American industry must depend upon technical efficiency that is up to date.

Certainty of Tenure.—Closely connected with this thought of protecting the beneficial action of engineering skill is the need of giving security to investment in productive enterprises. In the development of mineral resources great risks are encountered—some of nature's making, others man-made. The efforts of the geologist, engineer, and metallurgist are all directed to overcome the natural difficulties attending the winning of underground treasure and putting it to human use, but the reduction of risks of human origin is a task no less important, and this belongs to the economist, the publicist, and the lawmaker. The life work of the engineer who aids and indeed directs the investor in establishing a mining enterprise on a huge scale may have its constructive effect largely nullified by the propaganda of over-zealous theorists and by the effects of ill-considered legislation. Thus to the ordinary business risk attending the new venture is added an equal uncertainty as to whether the rules of the game

will not be changed before the large investment reaches the dividend-paying stage.

To secure full utilization of American natural resources, our national effort must aim to reduce the risk to investment in productive industry. Public control of large units of production should properly be directed against what Professor Hess aptly terms "exploitation of the market,"¹⁸ but equal care needs to be taken that in seeking to prevent high prices the restriction may not also hit low costs and productive capacity. Cost is a datum plane which may be raised as well as lowered but below which price can not sink for any considerable period; while low price is of little social value unless the available supply meets the Nation's actual needs.

Equitable Distribution of Net Proceeds.—In the development of natural resources the division of the attendant benefits also has an influence upon the degree of utilization possible. The public's claim for a fair share is more and more fully recognized, but of comparable importance is the need of making the production of the raw material receive its share of the profits attending the transition from ore in the ground to fabricated metal. If the margin of profit for mining is small, the tendency, whether the resource be coal or oil or ore, will be toward exploitation and waste; only the richest and the most accessible part of the deposits will be mined, and wasteful use of both machinery and men will characterize the operation, with no benefit to the ultimate consumer and with actual loss to posterity.

Reference has already been made to the example of seemingly unwarranted increase for the differentials in the manufactured product. The margin between Bessemer billets and plates in July, 1913, was only \$6 to \$7 a ton, whereas in July, 1917, this margin had increased to \$107 and even \$169. In this period of four years, moreover, the billets themselves had increased in price about \$70 and Bessemer pig iron had increased about \$42 a ton, while the Bessemer iron-ore price at the lower lake ports increased only \$1.55. High labor and fuel costs certainly contributed to these increases, yet few will believe that the profits on steel plates in 1917 were not excessive or were equitably distributed

¹⁸ "Foundations of National Prosperity," p. 156.

between rolling mill and iron mine. It is to the public interest that the natural resource should receive its share of the return.

Government Coöperation.—Educational and investigative work by the Government scientific bureaus is a part of the Nation's contribution to the mining industry. To be most helpful, these investigations need to be coöperative rather than competitive, at least in spirit, and the geologists, metallurgists, chemists, and engineers in the Government service should be in closest touch with those in private employ so as to supplement rather than duplicate each other's efforts. Fortunately for American progress, a notable beginning has been made in this type of coöperation. England has only recently discovered that State-aided scientific research is an effective means of realizing on the natural wealth of the land, and with this discovery should be connected the realization that for such application of science to industry the Government is not to be reimbursed by any direct revenue from mines but must look for reward through the public benefits from the fostered industry.

In other ways the Government can promote and protect the industries that utilize these natural resources. Wise administration of patent laws has helped to give to American industry certain advantages, and as the effort is made for even larger utilization of raw material and water power and human labor, the protection of American genius must be continued. Nor can the public interest be best served unless encouragement is given to promotion of the right sort. The army of prospectors, who give their lives to a quest that is largely misguided and mostly unproductive of results, is essential to the industry, and so also are the schemes of new uses and new methods, for though most of these are visionary some of them reveal rare vision.

Governmental coöperation in aid of the full utilization of mineral resources finds its largest field in the help it affords to small producers and pioneers. The duty of the scientist in the public service is to serve the individual citizen or corporation of limited means and experience much as the consulting engineer serves the large corporation. For instance, many of the great oil companies, recognizing the paramount value of a knowledge of the geologic structure in the guidance of oil exploration and development, have secured the exclusive services of geologists

trained in oil geology. These strong corporations, most of which have lured away from the Government service a number of its best men, are able to organize geologic corps for themselves and to examine geologically great areas of untested lands in order to select more certainly the localities in which, other things being equal, the prospects for pools are most favorable and the hazards of dry holes the least. All this investigative work at private expense benefits the whole Nation by securing new supplies of the needed oil with the least amount of unprofitable drilling. Yet the small landowner, whether in an oil territory or a coal region or a mining district, also needs expert advice, and in the interest of both nation-wide efficiency and economy this aid can be given by Government bureaus which serve the public in the capacity of consulting metallurgist, engineer, chemist, or geologist.

FULL UTILIZATION THE IDEAL

Public Benefit through Use.—The dependence of the Nation upon raw materials calls for wise but full use. Natural wealth is not national strength except as utilization of resources is guided in the line of benefit to the people generally. And the value of mineral reserves lies in their use when and where they are needed.

Choice of Sources of Material.—Interstate commerce has become a vital function in the highly organized system of the United States, yet a certain degree of local and State and regional independence is most advantageous. Henry Grady's appeals for a larger industrial independence of the South were not sectional in spirit but truly economic. Especially is it true that transportation of raw material is not a desirable end of itself: not only does it add to the cost, but, as the country has learned this past year, the necessity of long hauls may become a source of industrial weakness and indeed a serious limitation upon national efficiency.

The remedy is a selection of sources of material that is logical rather than haphazard. Secretary Lane's order that Indian agencies and schools purchase coal from the nearest mines, the distribution of orders for anthracite required by the Army cantonments and other Government establishments among the mines

best fitted—as regards both location and equipment—to handle the respective orders, and the recent effort of the Montana Fuel Administrator to make that State self-sufficient in coal are all executive acts wisely responsive to present needs. No State can live unto itself, yet it seems logical, for instance, that Montana, which is blessed with large coal resources, should cut off at least all long-haul coal that in turn can better serve markets nearer its source.

Another economic advantage in the attempt to coördinate sources of material with centers of consumption is the larger degree of utilization thus made possible. Much low-grade raw material could be utilized in near-by plants, whereas only the ore of much richer grade could stand the transportation charge to a distant point. Eventually, too, this principle will be recognized and put into practice by converting high-ash coal into electricity near the mine mouth, thus using the copper wire for transportation of pure energy rather than the steel rail for carrying the train loads of mixed fuel and ash.

Economic Distribution.—The economic distribution of output of raw material is obviously of national importance, especially when the country in its industrial expansion experiences the growing pains due to limitations of transportation. Even before the demand for coal was so urgent, the following suggestion was made as bearing upon the cost of coal: ¹⁹

“In the item of transportation perhaps the most promising means of relief is that of reducing the length of haul. Though many a consumer’s preference for coal from a distant field over that from a field nearer home is based on special requirements, the deciding element in the preference of other consumers is simply the price, and this in turn may be largely due to a differential freight scale, which is thus not in the public interest if we admit the premise that it is wasteful to burn such coal in hauling coal into coal districts or past such districts, except in so far as quality requirements absolutely demand the long-haul coal.”

¹⁹ Smith and Leshner: “The Cost of Coal,” American Mining Congress: *Science*, vol. 44, pp. 763-772, December, 1916; also *Economic Geology*, vol. 12, pp. 42-55, January, 1917.

The zone system for the distribution of bituminous coal now enforced by the Fuel Administration is simply an adoption too long delayed of measures to use locomotives and cars to best advantage. The system of "carrying coals to Newcastle" or past Newcastle is economically wrong, and the substitution of the coal-zoning plan will have value after the war as well as at the present time, when car distribution so largely controls mine operation. The estimated saving of 160 million car-miles is national thrift on a large scale. Admittedly, under more normal conditions transportation saving should not be considered alone; for instance, the pooling of coal may work too much against the keeping up to a high standard of quality the output of mines which formerly produced well-advertised brands, and the zoning system which effects economy of transportation may overlook the requirements of special uses and thus defeat industrial efficiency. Not every kind of coal or variety of coke will serve the purpose of some users.

The need of controlling distribution in the public interest can be illustrated by many instances. That a coal company operating mines in southeastern Kentucky and Tennessee had more customers in Iowa than in any part of the intervening territory indicates enterprise in building up a market, yet the hauling of that coal across several hundred miles of another coal field, into a State possessing coal resources of its own, raises the question to what extent superior quality of coal justifies the long haul. The public is interested in the fact that it takes an average of $1/33$ of a ton of locomotive coal for every thousand ton-miles—that is to say, more than a ton of coal is consumed for every thousand miles a car of coal is hauled, so that unnecessary transportation of coal means a wasteful use of coal.

The economical distribution of other raw materials from our mines is also a large factor in industrial strategy. To attempt to equalize opportunities for establishing industries by means of freight differentials favoring this city or that manufacturing district merely introduces an artificial factor which can not affect the actual costs. Whatever the pronouncement of the rate-making body, the distance the locomotive travels remains the same. Since in the end the industry pays all the costs of the product, the "short haul" between mine and market is a natural and real advantage, and whatever the rate the nearer the source of raw

material to the place of manufacture the greater the advantage to the Nation. As has been pointed out by Professor Leith,²⁰ legislation can be anti-conservational when it prevents division of market territory among producers. Some degree of governmental control of distributing agencies might permit the coöperation necessary to prevent the "excessive freight bill due to overlapping of territory served."

Another lesson in thrift is being learned in the matter of car loading, and this has its beneficial effect upon the car supply available for the mineral industry. The Railroad Administration is listing offenders in light loading, and thus securing direct coöperation from committees representing the particular branches of industry involved. The result in the loading of fertilizer, for instance, is an average increase of 50 to 100 per cent over last year's practice. At a single terminal a railroad official reported for the month of March 2,222 more tons with 318 less cars. Whatever the degree of wasteful use of transportation equipment in the past indicated by these figures, the increase in car service now attained is unquestionably a real saving.

Cross-currents have characterized overseas commerce as well as interstate commerce. Economy in distribution, however, is being forced upon the world by submarine warfare in European waters in the same way that we are beginning to make the best use of our domestic transportation system, which is now inadequate by reason of car shortage, deficiencies in motive power, and terminal crowding. Through all this interference with the hitherto easy-going commerce nations are learning the difference between essentials and non-essentials, a distinction that will not lose its usefulness with the coming of peace.

Balancing of Present and Future Values.—Full utilization as an ideal forces the forward look. Brain and brawn are the two essentials in the utilization of natural resources, and it is of prime importance to unite these in the work. The suggestion that "conservation of labor" is a synonym for "engineering efficiency"²¹ is the happy expression of a truth seldom recognized. The higher purpose of engineering is not so much to save material as to increase man power. Whether or not America's wealth in mineral

²⁰ "The Foundations of National Prosperity," p. 264, 1917.

²¹ Chance, H. M., Address at Penn. State College, Nov. 5, 1915.

raw material is so vast that we need to give little attention to future requirements, it is certain that we must recognize American manhood as a resource whose present welfare warrants first consideration; the social advances of this generation largely condition if they do not determine the future of humanity. Thus must the mean be struck between a spendthrift people and a miserly nation—neither bequeaths to posterity its due.

The problem of balancing the present and future value of our resources includes financial factors involving interest and taxation, social factors concerning the welfare of the worker and the needs of the consumer, and engineering factors relating to technical advance and possibilities of utilization, factors which are themselves changing from year to year, with the net result that the unknown seems to outweigh the known. No better statement of opinion can be offered than Professor Leith's ²²—"that where drastic measures for the future come directly in conflict with present welfare, the size of our mineral reserves is so large and expanding so rapidly that it may be difficult to convince the community as a whole that future needs are sufficiently clear to warrant much immediate sacrifice. But if the introduction of certain conservation measures may reasonably be postponed, there still remain wide opportunities for measures not directly inimical to present interest, and indeed even favoring it."

Partnership of Nation and Citizen.—In a recent report by a British committee the opinion is expressed that possession of lands involves duty to the State: agricultural land by whomever owned ought to be well farmed; the State is justified in enforcing good farming. This logic applies to more than the agricultural interests of a country, and to a time of peace as well as a time of war. Every industry has its share in the national welfare, and a large degree of national strength must come through industrial practice that benefits the individual as well as contributes to the general welfare.

The partnership of the citizen with the Nation of course involves division of losses as well as of profits, and there is often a delicate balance between the claims of the individual and those of society. The social limitations now, of necessity, placed upon individualistic endeavor and enterprise seem at first sight to be

²² "The Foundations of National Prosperity," p. 264, 1917.

wholly negative and restrictive, but government control may also be positive and promotive. Indeed, it becomes equally incumbent upon both the individual business man and the Government official to recognize this idea of partnership. Measures of national defense can be other than appropriations for armament: the strengthening of internal industry will help as much as the strengthening of coast defenses, and such an investment of Government aid need not be entered on any fiscal statement as idle capital.

Our war-time adventures in political economy promise greatest success in those matters that will still demand attention after peace has been attained. Not only the war strength of the Nation depends upon the available supply of mineral raw materials, but also the national efficiency while on a peace footing, and many of the principles of governmental control now called into action must be expected to have almost equal force under after-war conditions. Governmental control of industry is too often opposed with the flat statement that private control can be exercised with greater intelligence and with equally high motive. This assertion means that the man directly interested in any branch of industry as the representative of the capital and labor it enlists can be better trusted than any Government official representing the people's interest both as consumers and as producers. The practical experience of the man in the business is thus set off against the disinterested "theories" of the public servant. If, indeed, brains as well as high motive are not available for public service, a serious indictment is thus laid against representative Government: democracy fails to act intelligently. The present-day experience, however, shows that Government control is the more necessary the larger and the stronger the units of productive industry concerned; and yet such national control can promote the interests of the industry itself—at least as a whole if not in every part.

Industrial independence as a war-time issue is made imperative by the shortage in cargo carriers. Some citizens most concerned in the foreign trade have shown a willingness against self-interest to coöperate fully with the Government; with others conservatism and lack of realization of what the shipping program means have resulted in a passive attitude; while it must be added that too often at first the hand of the importer, the ore

buyer, the acid maker, the steel maker, or the alloy maker has been felt in short-sighted opposition to each move made for the development of domestic supplies of manganese, pyrite, chrome, or graphite. This influence not only expresses the natural conservatism of the industry, whose long-tested metallurgical or chemical practices are threatened with change, but with this, or often behind this, there is present even greater concern for well-established trade connections and relations. The entrance of new producers into the market or the development of a substitute supply might endanger informal and secret arrangements whereby production is distributed among the group of buyers. The old policy that involved the "gentlemen's agreement" is not wholly inactive, and indeed fears are expressed that without such intelligent guidance the market might "run away." The public-service nature of "big business" is perhaps most apparent to those whose practical experience may be limited but whose public calling compels them to see as a whole the reactions between all the industrial and commercial components in the great process of winning the raw material and converting it to the use of man.

In the present nation-wide task of making industry adequately serve the Nation stimulation of production and control of distribution are the principal items. The last ton of raw material absolutely needed is perhaps the most valuable ton, and for it the largest cost is justified. If in military strategy it is the last blow that wins the battle, it may be equally true that in the Nation's industry the last ton of acid counts for final success. To secure maximum production there needs to be both realization of responsibility and expectation of adequate return. The appeal to the patriotism of the Arkansas mine workers that every ton of manganese ore they mined would help to offset the shipping shortage and thus enable ships to carry food to France rather than bring ore from Brazil was successful, yet the patriotic labor and capital employed in the Arkansas mine are both ineffective except when the price paid for that ore by the steel companies is sufficient to pay operating costs. And, to continue the illustration, that supply of American manganese which can not yet equal the normal demand must be distributed fairly among the users in proportion to their needs. Whether the scarce commodity be coal or manganese, platinum or fuel oil, competition among buyers might benefit the producers at a serious loss

to the Nation. Hence control of both price and distribution through Government agencies rather than by any inner circle of this or that industry becomes necessary in the public interest.

The Government's function as a middleman, however, can well be limited to bringing the producer and consumer as close together as practicable. If six brokers get commissions on the same shipment of ore either the price to the consumer is too high or the return to the producer is too low, or both. The ideal policy of control is of course one that will surely prevent profiteering without discouraging that private initiative which is essential to efficient business. As partners, Government and industry need costs low enough to insure some profits to divide between producer and consumer.

Résumé.—America's unparalleled assets in mineral reserves have met the war-time test, and an unexpected degree of self-sufficiency in raw materials has made possible the marvelous expansion of manufacturing industries. The resultant increased burden put upon transportation has made too apparent the need of logically directing the agencies of distribution and of thus securing efficiency through economy. With this lesson in national thrift, taught by war, has come the realization that prices may be too low as well as too high, that adequate supply has larger meaning to the nation than cheapness, and that stabilizing industry by reducing hazards to a minimum takes away the only justifiable reason for large profits. So, whether the emergency has expressed itself in the demand for greater engineering efficiency, for a many-fold increase of domestic output, for a much more economical use of transportation, for the rigid control of distribution, or for the fixing of prices high enough to insure production and low enough to prevent profiteering, these novel experiences in political economy are of more than passing interest. Most of these forward steps will not be retraced.

All has not yet been accomplished, however, that is plainly America's task. Great as has been the "speeding up" during the past two or three years, infinitely more remains to be done. The shipping problem has required Americans to think in new terms, and unfortunately every one does not yet understand the new language, while many refuse to listen to an interpreter. There is too much thinking even yet in terms of the business and

industrial practice of yesterday, when to-morrow's supply of certain raw materials will be half that of yesterday. Definite substitution of lower-grade ores is the only answer, and America should count itself fortunate that it has domestic supplies that can be so utilized. To-day is a time when highest efficiency means adaptation to new conditions, and the sooner those conditions are accepted as inevitable the sooner America will be truly independent and thus able to do its full part.

The largest war profit will come in America in the growth of our ideals, and among the ideas linked with these larger ideals will be the greater realization of the interdependence of Government and industry. It is only in a democracy that the Nation and the citizen can be partners on a plan that divides the profits among the whole people on the basis of respective service. With that ideal the war-time lessons in industry can be made to count after the war for a greater because a happier America.

VI

TECHNICAL RESEARCH

(A) GENERAL ASPECTS

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The Importance of Research in Reconstruction.—It will be my object in the following lines to show how scientific research forms the keystone to the federal arch which the other matters of this volume properly constitute. There is one thing which this war will probably teach us. It is that a successful democracy must be made up of men who are interested and active in the undertaking itself. We must even take a hand in the making of our own intelligence.

The world advances by change, not by standing still. One nation passes another by exceeding in some critical way the efforts of the first. Judging by the past, taken as a whole, this seems a fair and, in any case, a persistent method. A nation which wishes to lead in any way can hardly expect to do so by merely imitating some other nation, though it may progress by energetically profiting from the other's experience. And so I hold that learning more and using the knowledge better is the criterion, and thus research keys the arch which supports our mineral resources, our transportation, our international commerce, our public debt, our foreign exchange rates, and our other problems.

Research is only the discovery and utilization of new facts

¹B. S., 1890, Massachusetts Institute of Technology; Ph.D., 1896, University of Leipzig; Associate Professor of Chemistry, Massachusetts Institute of Technology.

and phenomena from an unstinted supply offered by an exacting but bounteous nature.

Take a highly educated people, of the kind who make two or more blades of grass grow where one or none grew before, and let them exceed their competitors in this quality, and all their other problems will rapidly solve themselves. If we know how to make more than others and how to do it better, and if, then, we do it, the mineral resources are found and utilized, our international commerce is assured, and our exchange rate is safe. These are concomitant details.

But I am not writing merely of increased speed in sowing grass seed. I am thinking more of the knowledge which makes new tractors, plows, planters, cultivators, and reapers a part of the problem in which also new knowledge of artificial fertilization and grass growing are a small part.

If we cannot copy from other countries and thus grow to excel them, we may still excel by the good, old-fashioned, but difficult way of accumulated experience. We may learn from the experiments of others and add increments of our own. When this is undertaken as a job, it becomes research.

The Unconquered World of Matter.—Through the countless ages of man peoples have reached out for other worlds to conquer. Usually their ambitions have been strictly geographical. The advantages gained by this warfare may fairly be questioned, but few will question the value of reaching out for greater realization and utilization of the materials and forces right about us. In a geographical hunt the unknown fields became continually diminished, and now the whole world has been sufficiently fought over. But in the possibilities of matter, in the field of forces, in the realm of physics and chemistry the portion in which no claim stakes are visible is growing by leaps and bounds. Each discovery of a strange alloy puts a new cog in a thousand moving machines. Each added note to the knowledge of living matter reduces the sum total of human suffering. Each new fact of cosmic truth raises our mental periscope another notch and stimulates us to be less like the brutes.

I am considering engineering and scientific research because they interest me most, but I would not say less of many fields of knowledge where new truth may be attained. The biologist, the

bacteriologist, the surgeon, the entomologist, the astronomer, and even the experimental psychologist are but physicists and chemists in specialties.

It comes back to this: we need to know more about the things that surround us. Wherever we have inquiringly knocked, the way has always been opened to us, but even yet we have not realized the simplicity of the process nor the certainty of the result.

Does Knowledge of Matter Make for Materialism?—With the fanatic fear of the Navajo who will not face the truth-recording camera, we dread lest much real knowledge make us materialists. There is, fortunately, in all of us an inborn cry against loss of those human qualities which make for affection, honor, and the other golden attributes, and we will not be merely materialistic. It may be said by some that knowledge and the study of mundane things is responsible for world wars. It is truer that ignorance of these things accounts for the war losses.

We might be tempted to assume that the greatest idealists cannot simultaneously be helpful and hopeful materialists. Here our own advances prove the contrary. We think at first of the incomparable qualities of love and sacrifice, of cheer and sorrow. They must be, we say, the fundamental things with which matter has nothing in common. Perhaps here lies the mistake. Human qualities make good use of material coin. Service to mankind bears the same relation to engineering as faith does to works. One without the other is dead.

J. P. Munroe, of the Corporation of the Massachusetts Institute of Technology, recently said: "If the coming generation is to be educated to take its proper and effective place in the vast complex of modern society, . . . it must be brought, as far as possible, into real contact with all the elements which are building, out of the resources of nature and of man, an ever more complicated, ever more efficient, and ever more spiritual world."

This must be more effectively carried out with the present generation. We must begin with ourselves. We must contend in ourselves against the desire for more product for less effort. We must learn that more product, whatever it is, can come only from wiser effort. For example, a general vote for a six-hour working day must be offset by a 33 per cent increase in intelli-

gence to carry even the present load, and the average man or his son must learn to know all about this arithmetic.

The Temporary Changes Resulting from the War.—The war brought on many temporary changes. We were suddenly forced to depend on ourselves for many things which other countries had supplied us, including new knowledge. This was a health-giving exercise. It was being thrown into the water to learn to swim, but it generally succeeded. We made glass and we made dyes. We found new manganese and we made magnesium. We dug deeper for platinum, chromite, and magnesite, or we found substitutes. We attacked our air for explosives and our waste products for alcohol. We made acetone from coal and lime and took toluol from our city gas. These are temporary changes, and yet after a fashion we stick a feather in our cap and say, "What a great boy am I!" But all these industrial changes were forced upon us, and our whole dye business is about the size of our chewing-gum industry. We scarcely put an original thought into any of them. We were in the water, we remembered the motions of the swimmer, we tried them, and they worked. We are still being punished for not having been more active years ago. Everything was on hand except our willingness. We should have learned before.

We cannot remain a first-class nation and still take our cue from another. We cannot depend on foreigners to give us our working drawings. We are strong in commercial development; we must become stronger in its prerequisites. We have the environment, we have the need, we have the soil in which the celestial plant of research will grow, but we are short of the seed. We need the interested young student of things as they are, the appreciative worker in matter, no matter what it is. We need to see that back of all useful advances are usually painstaking original study and experiment.

Engineering has never before reached the active state it enjoys at present. The research which has largely been the basis for it has been the work of the more highly educated nations for nearly a century. The war has brought this definite condition to our recognition. It calls for a gospel of work, with mind and hand. It carries with it the high significance of a knowledge of the earth and its contents. It involves the propriety of doing

something about it and sounds the warning that those nations who do not utilize the boundless grants of Providence and do not look into her vast storehouse of possibilities will probably become second-raters.

The Necessary Readjustments.—We shall have to readjust along the lines of training. Most of our present trouble may be traced to lack of knowledge. Sixty thousand inventors send in suggestions for devices to destroy the submarine. One per cent of them may indicate some knowledge, but the rest display only a desire to serve, which, owing to lack of knowledge, is out of the question. What a crime that this effort cannot be better directed! Why not better equip these willing minds?

Our water powers are still being allowed to run to waste, when we ought to force industries to use them and conserve our limited coal supply. If our oil can last but twenty-five years more, as is threatened, what is a practical solution?

We are defying the laws of elementary physics in public and listening to the vagaries of Giragossians, Keeleys, Cooks, and Jernegans. We expect to burn water in our automobiles and use our coal ashes over again. The sea is full of gold, so why work?

But maybe the whole world is finding itself. Witness the great increase in physical and chemical knowledge during our own lives and the enormous development of what we call engineering, which is but the application of knowledge to our needs. When we analyze the knowledge we find much of it is only partial understanding, a still insufficient application of the funds of nature.

A Triumph of Research.—The aeronaut who alights like an eagle in front of the tepee of the ignorant Sioux on some barren western reservation carries with him on his airplane more science and engineering than were ever collected into any one structure before. It is more wonderful than the Sioux's wondering capacity. It may be said to be a little sample case of the hereafter carried into the past. After thousands of years the Indian stands but little ahead of the cave man or the cave bear. He may have highly developed senses and be capable of all the mental processes of the agile aeronaut, but he hasn't given the material about him the thought it deserves. He may be as strong in worship, as

pure in affection, as advanced in ethics, and as deeply introspective and philosophical as the white man, but he lacks what civilization has always been especially striving for and what it will not stop seeking—development. The path of the aeronaut has been through observation and study of the identical materials which surround but are invisible to the Indian. The airplane carries some of the same rock oil the Indian used for “big medicine,” but the oil drives and lubricates an engine which he cannot in the least understand. It is made from the red ocher and the clay he has always used for paint, and by means of the fire and the waterfalls he has always known. It carries a wireless telephone so that the voices of friends, miles removed, are heard and recognized. It carries a box which produces petrified vision and has an eye with a power like many eagles. It drops bolts of thunder which produce a valley where a hill just stood, and it shoots many little arrows more deadly than the whole Sioux tribe. It carries a small sun which shines at night and projects its light wherever wanted, and lo! the very blanket of the man is heated by harnessed lightning in wires woven with the wool. A little box tells the aeronaut how far he came since last he landed, and, wonder of wonders! it directs him perfectly to a new place he has never seen before. When he soars aloft he knows just how high he is, and he is not lost when flying in the dark. But this is all and only because experimental work has been done. All these things and much more resulted from the inquiries made into the matter which surrounded the Indian and surrounds us and which certainly still contains infinitely more of matter just as difficult to grasp as the aero is to the Indian.

In our complacent and still relatively ignorant present we are Indians. Though our faces may be turned toward the light, our feet are still reluctant. Potentialities of things we call clay and dirt lie all about us but are unnamed or dimly seen. We use them more extensively than as war paint, but we still know little about them. We appreciate them to the extent which some one's studies have warranted. I suspect that their real value is measured only by the elasticity of our own minds. We see that the Indian cannot appreciate his position, but do we appreciate ours? The Indian often longed for the pinions of the eagle, but his wistful thoughts fell far too short. Countless facts of earth and air, of oil and ore, of force and fire had to be gathered first. Is

it possible for us to see how clearly the future depends on the orderly advance in knowledge of matter wherein lie all our yet inconceivable possibilities?

A Policy to Follow.—This would be a barren article if it did not give a remedy for our malady. There is a sure cure. Like many other good things, its prime merit lies in its simplicity. We have got to depend as a people more on our average wisdom than on our occasional wizards. Edisons may be as rare as Halley's comet, for we haven't learned the wizard's orbit yet. We must regard them as rare good luck, bonuses of a bounteous nature, or unearned increments of civilization. Meanwhile, we must increase the number of young men who can study the facts and phenomena which are about them and who, with hand and brain, will add to the sum of useful knowledge. We must simplify the method by which such men are matured in our country. There is no other sure, no other promising way.

There has never been in America any real attempt to do this work. As a rapidly growing and immature collection of States, we have gone about as far in educating ourselves as each community believed its purse should bear. Some western States have been almost as bold in fostering research as some little foreign cities, but collectively we have neglected the higher education of everybody. This poor policy has cost us dearly.

One contribution of the war must be a real demonstration to the American-born youth that he may count on as good a chance of being an educated contributor to the new knowledge and to the new activities of this world as if he had been born in Russian Riga, in Saxon Leipzig, or in some other little foreign university town. His father must make this possible.

Heretofore a college has too often been either a bore or a sport, a grind or a joke. The more studiously inclined saw only Newman's "heart-piercing case that stood at hand for the reflective mind":

"To consider the world in its length and breadth, its various history, the many races of men, their starts, their fortunes, their mutual alienation, their conflicts; and then their ways, habits, governments, forms of worship, their enterprises, their aimless courses, their random achievements

and acquirements, the impotent conclusion of long-standing facts, the token so faint and broken of a superintending design, the blind evolution of what turn out to be great powers or truths; the progress of things as if from unreasonable elements, not towards final causes; the greatness and littleness of man, his far-reaching aims, his short duration, the curtain hung over his futurity; the disappointments of life, the defeat of good, the success of evil, the pervading idolatries, the corruptions, the dreary, hopeless irreligion, that condition of the whole race so fearfully yet exactly described in the Apostle's words: 'Having no hope and without God in this world'; all this is a vision to dizzy and appall and inflicts upon the mind a sense of profound mystery which is absolutely beyond human solution."

With a certain type of education, the greater its degree the higher becomes the unhappiness from dogma and introspection. It may be true that this profound mystery is "absolutely beyond human solution," but from the lower animals who do not know, through the lower peoples who do not care, to the "starving chemist in his golden views supremely blest," there are signs that hopelessness is neither a virtue nor a necessity.

Our brightest and most daring students often looked for something with more "pep" than the "dope" which a poorly supported faculty supplied, and they lost their bearings. The words of wisdom from the mouths of ill-fed professors did not have the true metallic ring of the sound of a monkey wrench, and the boys chose the wrench. They never saw education from the standpoint of service at all, though it was there. They were neither slackers nor cowards. Those that failed to appreciate our system of higher education were usually the first to enlist as airmen for France. We had merely failed to show them. We shall probably have to pay our college presidents and teachers as much as we pay some of our ball players, and also let the "lesser leagues" in education have those of "lower batting average."

Great Britain, among a score of war activities, has lately so increased the field of its national physical laboratory that it is now spending at the rate of over half a million dollars a year for research. It carries on scientific work along chemical, metallurgical, and physical lines, with the coöperation of the industries

and of the scientific societies. This is a wonderful stride for a country whose industries were entirely hidebound and of which one authority wrote: "Science in the eyes of the average Englishman consists of a new-fangled set of ideas, all very well for those who can afford to study them, but in his opinion not of such daily practical importance that it is necessary for the Nation to pay attention to them." An ideal condition might result if the coöperation reached such a stage that no efforts in new work were duplicated, and if all results were quickly and extensively utilized, and if the process were perpetual. This is too much to expect. It is like looking for the full corn in the ear in the first blade. England is, however, utilizing for immediate service more of the latent energies of her trained scientists than heretofore. It is not a complete after-the-war policy.

Japan is now expending several million dollars in organized Government research for industrial uses. Even this is a lesson to us. But Japan and England will have to find the men or encourage them to find themselves, before such plans can be more than makeshifts. A single large laboratory for the study of nature's laws, no matter how great it may be, and no matter to which particular end it directs its attention, is not our cure. We should like to insure the continually reinvigorated advances into fields of unlimited possibilities by a growing army of wide-awake investigators. We should like to see the men produced who will, in turn, by their inquisitive example, kindle the spark in others. This is a system which puts the wand into the hands of young men in every part of our country. If we want Faradays, we must see how they were produced and imitate the method. Intimate contact with trained students of nature is as sure a method in science as in the training of a good mechanic or an artist. We are now about at a point where good leaders of scientific thought and work can be settled in the widely separated parts of our country and in institutions where learning up to a certain stage has already been the aim. A few are already setting this example, but the support is inadequate. We hear of the influence of men like Nichols and Noyes, Neff, Stieglitz, Richards, and Millikan, but we don't usually hear of their sacrifices. Every one of these and many others should be a nucleus about which research men would be trained. Every year a new supply of men who were trained in truth and in the practical methods of

attaining it in new phenomena would be added to our useful supply. We have heretofore postponed this step in America. Our efforts have been applied to producing men who could repeat the old stunts with the old tools. We have trained thousands of analysts in chemistry and physics. Scarcely a ton of steel gets by them untested. We have trained thousands of engineers up to the point where they were acquainted with the main history of their profession and could repeat its standard operations, but we have generally stopped there. We have taught them to catch up to civilization in its march. But the fire of conquest of new fields born or bred in our professors has been slowly quenched for lack of oxygen. Now we must add to these preliminaries a method and a procedure which go to make the pioneer. They consist in merely following the straight road already mapped out by the histories of those who have hitherto contributed to our new knowledge in all countries.

TECHNICAL RESEARCH

(B) ENGINEERING AND ALLIED SUBJECTS

By A. A. POTTER¹

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Effect of the War upon Technical Research.—The world war has resulted in a realization of the value of technical research such as has never existed before. This was brought about by the requirements of modern warfare, by the changing industrial and economic conditions, and by the fact that every nation, whether belligerent or neutral, has found it essential to be as independent as possible of all others with respect to its needs for sustaining life and industry. New industries had to be developed, and the old industries were forced to take up new lines of manufacture. All this required the acquisition of new knowledge, which could best be obtained by technical research.

The effect of the war upon research as seen by men prominent in engineering, in technical education, and in industry in various parts of the country is shown by the following quotations:

"A number of branches of engineering have advanced on account of the war much more rapidly than would have otherwise occurred, so that they are in a state which would not normally have been reached for many years in the future. This rapid advancement has given such an impetus and has so broadened the field of operations that engineering research will continue on a much greater scale than was the case before the war. All engaged in engineering and in industry will have to adjust themselves to the greater amount

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of research work and more rapid changes in states of the various arts and in the less continuation of old customs and apparatus."—SANFORD A. MOSS, Engineer Turbine Research Department, General Electric Company.

"The necessity for speeding up production has attracted the attention of the whole civilized world to the need of a scientific basis for everything of an industrial nature. The war has made the average practical man familiar with the term *research*, and he no longer is apt to consider it as high-brow stuff. On the other hand, he is rapidly appreciating the fact that it may play a very important part in his own business."—C. R. RICHARDS, Dean College of Engineering, University of Illinois.

"This war has stimulated research immensely, and the stimulus will be felt after the war is over, but I do not consider research any more necessary after the war than before it."—IRA N. HOLLIS, President Worcester Polytechnic Institute.

"The greatest change which has come about appears to me to be the overpowering impression which has been produced in the minds of the people of the world of the importance of engineering with relation to everything in life. I believe this will stimulate activity in the extension of what I may term engineering knowledge to meet the new demands which are sure to be made."—F. W. McNAIR, President Michigan College of Mines.

"The importance of technical research has been illustrated in every field of engineering concerned with the war. Success in war depends upon the quick adaptation of new devices for offensive as well as for defensive purposes. . . . The conservation of material resources has been emphasized as never before. . . . Economy in the production and in the use of materials, prevention of wastes, and utilization of materials formerly wasted are becoming more important every day. . . . The need of nations to be economically independent has become of much greater importance. . . .

Technical research is essential to utilize our resources economically, to develop satisfactory substitutes for materials formerly obtained from other countries, etc."—C. R. JONES, Dean College of Engineering, West Virginia University.

"Research is of increasing importance because we must know the facts relating to the use of the principles of science. Our industries must proceed with an exact knowledge of facts rather than in a haphazard way, as has been frequently the case."—L. P. BRECKENRIDGE, Professor of Mechanical Engineering, Yale University.

"The tremendous production of war munitions, made necessary to supply our needs and those of our Allies, has brought to us very many problems which are different from those on which we were working prior to the war. . . . These problems are not different in principle but only in detail from those which we faced prior to the war, and much of the research which is carried on, while temporary in character, will be of direct value when the war is over. The war is causing the depletion of many materials which were plentiful prior to the war, and substitutes for these must be found, both for war purposes and for peace purposes after the war is over. High prices for many things will undoubtedly continue after the war, and properly directed research can do much to find substitutes, to lower prices, etc., in the period of reconstruction after the war."—C. E. SKINNER, Director of the Research Laboratories, Westinghouse Electric and Manufacturing Company.

"Among the changes and hardships with which biological laboratories were confronted, especially during the first year of the war, were those pertaining to the dearth of reagents which had previously been purchased abroad. To mention one case, after the war had begun America found herself without a supply of peptone for bacteriological work. The basis of all research in bacteriology depends upon the proper growth of various organisms, and this in turn depends upon accurately prepared culture media. It became necessary

for American bacteriologists to provide substitutes for peptone, and this meant much research.

"As every one knows, America has gone far toward readjusting herself to conditions as illustrated above. Research is convincing us that we do not necessarily have to depend upon products made in Germany."—WALTER E. KING, Junior Director, Research Department, Parke, Davis & Company.

"Greater activity in biological research became necessary on account of the new and acute changes in environment resulting in new forms of maiming, shock, poisoning, and the trench diseases produced by crowding, ventilation, exposure, contact, etc., increased importance of venereal diseases; reduction of food reserves, etc."—Major SAMUEL C. Prescott, U. S. Army Sanitary Corps.

Technical Research in the United States Before the War.—It is a well-known fact that researches in engineering as well as in other branches of science and learning had until very recently been greatly neglected in the United States. There was little appreciation of the value of original investigation, and very few men were willing to take up research as a life work.

For a number of years before the war, however, considerable attention was given to technical research by the large electrical, chemical, and metallurgical industries. The General Electric Company, the United States Steel Corporation, the Eastman Kodak Company, the Bell Telephone System, the Du Pont de Nemours Company, the Westinghouse interests, the United States Rubber Company, several of the prominent automobile manufacturers, and other large manufacturing concerns maintained research laboratories, at considerable expense.

Some of the prominent industrial leaders encourage fundamental researches, as they are convinced of the ultimate value of all investigation. It is being realized more and more that research, while often not leading to the solution of the particular problems under investigation, will usually result in the development of new truths in the way of new processes or of materials with new properties. This has been illustrated many times in connection with technical research—for example, when the recent ex-

periments to eliminate dust in cement plants resulted in recovering potash as a by-product of cement manufacture.

Engineering Research in Government Bureaus and Departments.—Several of the United States Government departments and bureaus have been carrying on researches of the utmost value to industry. Among these, the Bureau of Standards of the Department of Commerce, the Bureau of Mines of the Department of the Interior, and the various bureaus of the Department of Agriculture have been among the most important factors in standardizing our manufacturing, mining, and agricultural methods, in increasing productivity, and in lessening the waste of human life and of human energy in the factory, in the mine, on the farm, and in the home.

The activities of the Bureau of Standards are stated by its Director to include investigations relating to standards of measurement, of physical constants, of quality, of mechanical performance, and of practice.

Correct standards of measurement are of great importance in all phases of technical research as well as in industrial processes. By the determination of physical constants, standards of quality of materials, standards of performance for machines, and standards of practice the Bureau is able to serve the research workers and designers in every branch of industry. The program of the Bureau calls for the performance of technical investigations of the greatest variety and highest grade, as is evident from the following partial list of problems it studied during one year: Linear expansion of materials, development of an optical protractor of great accuracy and of other special instruments to be used for the testing of munition gauges in large quantities, development of an inexpensive balance of high sensibility, determination of density of materials for airplane construction, investigations on aeronautic measuring instruments, determination of refrigeration constants, thermal conductivities of insulating and structural materials, fire tests of building columns with various kinds and thicknesses of fireproof coverings, effect of temperature on the physical properties of steel, electrical investigations of military character including radio testing, a study of the magnetic properties of steel, investigations in photometry, telephony, photography, balloon gas, electrotyping, and electroplating, fire

extinguishers for submarine chasers, gasoline intensifiers, aeronautic radiators and engines, railway materials, physical properties of earths, cement, concrete, stone, gypsum, tile, brick, clay products, and lubricating oils.

The function of the United States Bureau of Mines is to carry on such investigations as will lead to increasing safety and efficiency in mining and to a more efficient development and use of our mineral resources. Among the important subjects covered by technical investigations of the Bureau completed or in progress may be mentioned the following: Mine fires, mine gases, mine accidents, inflammability of coal dust, explosives for engineering and mining operations, mine lamps, smelting ores in the electric furnace, effect of volatile matter in coal, deterioration and spontaneous combustion of coal in storage, washing and coking tests of coal, producer gas, flow of heat through furnace walls, briquetting tests of fuels, transmission of heat in connection with steam boilers, smoke abatement, economical utilization of low-grade fuels, cracking processes for increasing the yield of gasoline from crude petroleum, extraction of gasoline from natural gas by the compression and absorption processes. Researches also are being conducted by the Bureau of Mines, in cooperation with other agencies, for increasing our supplies of nitrogen, potash, nickel, and manganese.

The United States Department of Agriculture carries on, besides agricultural research, engineering investigations in connection with road building, road materials, irrigation, drainage, farm machinery, farm power, and similar problems of value to the agricultural industry.

The war conditions which demand greater activity in agricultural research are mainly the shortage of food, feeding stuffs, fertilizers, and labor, and the Department of Agriculture and the experiment stations are bending their efforts principally to the problems presented by these conditions.

Much attention is also being given by the Department of Agriculture to the discovery and profitable working of sources of potash and to the question as to how necessary this substance is in the feeding of crops on the different soils.

The Mellon Institute.—Among the most interesting research organizations in the United States is the Mellon Institute of In-

dustrial Research, at the University of Pittsburgh. Researches at this institute are carried on by Fellows, who receive their compensation from the individuals or the companies that have new problems to solve. The Mellon Institute furnishes such facilities as are necessary for the conduct of the work.

The idea of this system of practical coöperation was formulated by Dr. Robert Kennedy Duncan, who established in 1907 the first industrial fellowship at the University of Kansas through a grant from a manufacturer of launderer's material. The first industrial fellowship at the University of Pittsburgh was started by Dr. Duncan in 1911. In 1913 the value of this type of coöperation between science and industry had become so well recognized that this work was established on a permanent basis through a gift from Andrew William Mellon and Richard Beattie Mellon, of Pittsburgh. During the six years from 1911 to 1917 sixty-four distinct concerns have endowed 147 industrial fellowships at this institute to study the problems in which they were interested.

The investigations carried on by the Fellows at the Mellon Institute include such subjects as the corrosion of iron and steel, problems related to the manufacture of food, problems related to petroleum, the development of steam power plant accessories, hydro-metallurgy, the fixation of nitrogen, and the utilization of mineral wastes.

The Mellon Institute and similar research organizations are in a position to assist the smaller industries, which cannot afford to develop extensive research laboratories. Dr. Raymond F. Bacon, director of the institute, states that its work has convinced manufacturers that industrial research properly carried on is profitable, and they have thus been encouraged to establish well-equipped research departments of their own.

Technical Research in Colleges and Universities.—Besides the research laboratories of the great industries and of the Government, the educational institutions of higher learning are important factors in creating new knowledge. These educational institutions, which are scattered all over the United States, make available research facilities at points where there are local problems. As compared with the industrial laboratory, the university or college laboratory has greater freedom from interruptions, an

atmosphere which is sympathetic to research, and no necessity to safeguard results by secrecy.

Investigations in engineering and in other branches of technical research have at all times received considerable attention and much encouragement in our universities and technical institutions. Teachers in universities and colleges recognize that activity along research lines enables them to keep in touch with the progress of their profession, while commanding the attention of their students and the respect of their associates.

The agricultural experiment stations which were created at the land-grant institutions by the Hatch Act of 1887 and which are receiving additional Federal support for agricultural research in accordance with the Adams Act of 1906 have been the most important factors in advancing scientific agriculture in America by solving local as well as national problems. As a result of the researches carried on at these institutions upon all phases of animal and plant production, disease prevention, and other agricultural problems, the business of farming has been placed upon a firm foundation. The liberal contributions of the Federal Government for research in agriculture are being supplemented by appropriations from the States for research of the same type. About \$1,500,000 is being spent annually by the Federal Government and nearly \$2,000,000 by the States for research in agriculture, apart from teaching and extension work.

Technical research at educational institutions along lines other than agriculture receives no support from the Federal Government, and only a few of the States have appropriated funds for carrying on researches of value to our manufacturing and transportation industries.

The advantages to be derived from systematic experimentation in engineering at educational institutions became apparent many years before the war. Those who were familiar with the benefits which resulted from the establishment of agricultural experiment stations made several unsuccessful attempts to secure Federal aid for experimentation in engineering and in the other branches of the mechanic arts. Several institutions have organized engineering experiment stations, without waiting for Federal aid. The University of Illinois and the Iowa State College were the first to take such action, in the winter of 1903-1904. They were followed by the University of Missouri, the Pennsylvania State Col-

lege, the University of Wisconsin, the Ohio State University, the Texas Agricultural and Mechanical College, the Kansas State Agricultural College, Purdue University, and several other universities and colleges.

The investigations of these engineering experiment stations at educational institutions, notably those at Illinois and at Iowa, have made great contributions to engineering and manufacture by the discovery of new properties of engineering materials, by increasing the efficiency of several industries, and by creating interest in technical research. Dr. Henry S. Jacoby, a prominent civil engineer and educator, says:

"The results which have been secured by the engineering experiment station at the University of Illinois, supported by the State, show how fruitful may be such a station associated with a university. It is hardly possible to overestimate the aid rendered by that station in the development of a rational basis for the design of reinforced concrete since this new material on construction was introduced in the country. This is but one of many subjects investigated by that station, whose good work is recognized by engineers in other countries, as well as in our own."

The same idea is set forth by Dean F. E. Turneaure, of the University of Wisconsin:

"The present activities in Washington on the design of concrete ships emphasize the importance of research work which has been done in recent years in college laboratories on reinforced concrete. A very large part of the information on the subject has come from such laboratories."

The awakening which the war produced has led to renewed activity among the advocates of Federal support to technical research of value to the industries. Those interested in the development of all our resources and in encouragement to all American industries, small as well as great, have felt that Federal assistance for research at educational institutions would aid in developing the resources and industries of the various States, would popularize technical research, would train research men for the

great industries and for the Government, and would react beneficially upon the instruction of students in technical institutions.

This increased interest in technical research at educational institutions resulted in the Newlands bill ² for experiment stations in engineering to parallel the experiment stations in agriculture at the land-grant institutions. This bill received considerable support from the prominent research men of this country, who were anxious to have all other branches of research receive the same recognition from the Federal Government that agricultural investigation now enjoys. Many also felt that the passage of the Newlands bill would promote more extended and more generous support of all phases of technical research, not only in land-grant institutions but in all technical educational institutions and in the industries. Several other bills were introduced recently, but all met the fate of the earlier efforts for Federal support of engineering research. This was due mainly to the lack of active interest among engineers and those interested in the industries.

The war is bringing about closer coöperation between the Government, the manufacturers, and the educational institutions. As time goes on the Federal Government and the industries will be giving greater recognition to technical research and will be willing to recognize the field of research at technical educational institutions, where attention must be given mainly to investigations which will advance knowledge of science and of industry and to the training of research workers for the Government and for the industries. The educational institutions will also become the technical research laboratories of the smaller industries and will be concerned mainly with the local problems, as research in close touch with local industries can best be carried on in many small laboratories. Before long Federal support will be given to technical research which can aid the development of our natural resources in the interest of the military and industrial preparedness of the United States.

Research and the Engineering Profession.—Several of the national engineering societies are also giving considerable attention to research. For example, the American Society of Mechanical Engineers has subcommittees dealing with investigations on fuel

² Senate Bill 4874, 64th Congress, 1st session.

oils, materials, safety valves, worm gears, lubrication, clinking of coal, steam flow meters, machine tools, etc.

A noteworthy incident in the history of the profession of engineering in the United States was the inauguration of the Engineering Foundation on January 27, 1915. The Engineering Foundation is a fund to be administered for the advancement of research by the arts and sciences connected with engineering, for the benefit of mankind, the basis of which is the initial gift of a considerable sum for that purpose by Ambrose Swasey, past president of the American Society of Mechanical Engineers.

The value our Government is attaching at the present time to research has been illustrated by the establishment of the United States Naval Consulting Board and of the National Research Council. The Naval Consulting Board was created in August, 1915, to coöperate with the Naval Advisory Board and consists of representatives from eleven engineering and scientific societies. Two representatives have been chosen from each of these organizations, with a view to obtaining the most advanced thought and experience in the various lines of engineering activity and technical research. Technical investigations of the utmost value to the country have been carried on by the Naval Consulting Board in coöperation with other scientists. These researches covered anti-submarine devices of many kinds, the production of nitrate and of optical glass, and other important problems.

Urgent Investigations During the War.—Our researches during the war should be concerned mainly with such problems as will enable us to become most effective in a military capacity, to utilize our resources of labor and materials most economically, to safeguard public health, and to develop such industries as will make us as independent as possible of all other nations with regard to the needs in our industries and homes, while releasing all materials needed for war activities.

We must develop metals of greater strength and of lower specific gravity for airplane parts and for other uses. Research will also enable us to produce metals which will have great strength under high temperatures and will be more suitable for gun linings than those used at present.

We must have larger quantities of fixed nitrogen and of potash

for use in national defense, for the manufacture of fertilizers, for the production of many highly colored dyes, and for other necessary uses.

The National Defense Act³ of June, 1916, empowers the President to make an investigation "to determine the best, cheapest, and most available means for the production of nitrates and other products for munitions of war and useful in the manufacture of fertilizers and other useful products by water power or any other power as in his judgment is the best and cheapest to use" and authorizes him to construct and operate such a plant or plants, appropriating the sum of \$20,000,000 to carry out the purposes of the act.

Nitrogen fixation depends upon an abundance of power, and this can be secured either by the greater development of our water powers or by the utilization of waste and low-grade power. Greater encouragement should be given to develop our practical water sites, and every effort should be made by all manufacturers of power to conserve our fuel supply, by more economical utilization of fuel of all grades and by the use of so-called waste fuels. This means greater attention to power-plant economy and investigations to increase our available fuel supply by the utilization of culm, breeze, and other low-grade fuels in properly designed furnaces.

More attention should also be paid to increasing the production of by-product coke and to restricting the production of beehive coke, as good coke can be less wastefully produced with the by-product ovens that are operated mainly for gas production. The gas can be utilized in the industries and in the homes. Dyes and drugs can also be manufactured from by-products obtained in the manufacture of coke and gas in smelting operations.

The absolute necessity for the fullest coöperation among the allied nations who are engaged in the war has emphasized more than ever before the advantages of universal use of the metric system of weights and measures. The last effort at the national adoption of the metric system in Great Britain was made some ten or twelve years ago and met with great opposition, but many who opposed it at that time now feel that the change is inevitable. The first expense of making the change will be heavy, but it is

³ H. R. 12766.

believed that in the long run the change will be profitable. A bill that has been drafted recently by the British Associated Chambers of Commerce and is now being critically considered by manufacturers of that country makes the metric system a legal standard for trading but does not prohibit the manufacture of apparatus or machinery in other than metric measures, so that it makes possible a gradual change which will not work hardship upon the industries. At the end of 1916 the American Metric Association was formed to further the adoption of the metric system, which has been legalized in the United States since 1866.

Technical Research After the War.—Any technical investigations, whether carried on now or before the war, that extend the boundaries of our knowledge will prove of great value to us during the period of reconstruction. Researches of value to our Army and industries at the present time will have a direct bearing upon our industrial activities after the war.

Properly organized research laboratories widely distributed through the industries and technical educational institutions of the various parts of the United States will do much in aiding us during the war and in preparing our country for the reconstruction period. Small appropriations at the present time by the Federal Government for technical research in the educational institutions of the various States will prepare research workers who will prove of value to our country in the future in connection with the solution of our local and national problems.

The foremost men of all countries recognize that an effective system of technical research cannot be started at the moment hostilities cease, and unless we are willing to start at once a definite program for the support and encouragement of technical research, we shall be unable to cope with the problems of reconstruction after the war.

To compete successfully with manufacturers of foreign countries, we shall have to foster technical and scientific investigations in order to insure the production of satisfactory and diversified manufactured products at a low cost for labor and materials.

Greater use will have to be made of the resources of nature in order to make up for the waste of man power now occurring, and this will involve all phases of research.

112 AMERICAN PROBLEMS OF RECONSTRUCTION

President Ira N. Hollis, of the Worcester Polytechnic Institute, considers that

"The difficulties of readjustment after the war may be lessened very much by careful study as to what engineering research should be and as to how coöperation can be carried out, including in the scheme of coöperation the Government agencies, the colleges, and the industrial establishments. . . . So far as men are available, I think all phases of research should be continued through the present time just as if the war did not exist. . . . In my opinion all kinds of engineering research will be of value after the war is ended, but there is one side of this which I hope to see very much promoted. Every industrial establishment employing a considerable number of men, say 500 or more, ought to have a school for apprentices and a laboratory for research as part of its necessary equipment."

Manufacturers should be willing to spend a definite percentage of their sales for technical research, in order to counteract competition. The industries will be concerned with such researches as will enable them to simplify and cheapen their manufacturing processes, to utilize low-grade and waste products, and to develop new and useful products.

A definite policy should be settled for the development of the raw materials in the various parts of the country.

New types of alloys of metals will have to be evolved, with properties unheard of at present, and different properties will be discovered by experimenting with known metals.

Hydroelectric power will have to be developed, particularly in the South, and this will result in greater activity along electrochemical and electro-metallurgical lines. Some attention will be given to the utilization of the low-head streams in the Middle West.

Electrolytic processes will have to be used to a greater extent, as will also the electric furnace in the iron and steel industries and for various reduction processes, such as the reduction of phosphate rock.

Greater attention will have to be given to fuel conservation. Technical research will aid in the development of furnaces for burning low-grade fuels under boilers as well as for the gasifica-

tion and carbonization of the fuels now wasted. Methods should be investigated for reducing the loss of coal through spontaneous combustion during storage.

It has been suggested⁴ that the volatile matter of bituminous coal would have greater economic value if converted into gas or liquid fuel than if burned under steam boilers. This suggestion is worthy of careful investigation, as heat in the form of coal gas is worth considerably more than the equivalent amount of heat in the form of coal. Carefully worked out processes for converting coal into liquid fuel will yield benzol and other liquid fuels of value in national defense, for use in internal-combustion engines, and for industrial purposes.

Coal-mining methods as well as oil-field and gas-field practices will have to be investigated, and the cost of producing fuel should be decreased, while wastes are reduced to a minimum.

Boilers for steam-power plants will have to be developed to carry higher pressures. Pressures of 350 pounds are now in use, and these will probably be increased. Steam prime movers will have to be designed for high temperatures and pressures, and greater attention will be given to refinements which will contribute to greater ultimate power-plant economy.

Researches in connection with the lumber industry will change the present wastes in the field and in the mill into useful by-products, such as turpentine, alcohol, paper, twine, and gas. Improved methods of preserving lumber should also receive attention.

In the petroleum industry new processes will have to be perfected for the manufacture of gasoline in greater quantities, and new uses will be found for the products which are now in less demand. More gasoline will have to be produced from natural gas by the absorption and compression processes and from petroleum by improved cracking processes. Greater use will also have to be made of other combustible oils, such as shale oil, lignite oil, and tar oil. The petroleum technologist and the mechanical engineer should coöperate in the design of carburetors suitable for low-grade petroleum fuels and for other combustible oils.

Investigations will need to be carried on with a mixture of benzol and alcohol, also with mixtures of benzol and low-grade petroleum fuels in internal-combustion engines.

⁴ Bureau of Mines Bulletin 135.

114 AMERICAN PROBLEMS OF RECONSTRUCTION

Improved methods will have to be perfected for the manufacture of illuminating gas.

The ceramic industries will have to be developed to a greater extent by more investigations of our clay industries. Greater attention should also be given to the conversion of our raw materials into useful products.

More accurate instruments of great simplicity should be perfected for the measurement of steam, gas, and other fluids.

The use of the metric system should be introduced more generally in industries interested in foreign industrial markets.

Definite properties as bases for standard specifications of materials should be fixed.

Mechanical power on the farm should be used more and more, as traction engines and trucks are perfected and adapted for the conditions on various farms and in different localities.

Our knowledge of the methods of communication and of transportation should be improved by researches on electric and steam locomotives, the motor truck, the automobile, the airplane, wire and wireless telegraphy and telephony. Greater attention should be given to permanent roads, in order that the locomotives may be supplemented by the auto-truck and the automobile.

The above suggestions include only a small portion of the investigations necessary in order to bring out our possibilities as an industrial Nation.

For effective research now and after the war better support must be given to the scientific bureaus and departments of the Government, as well as to educational institutions capable of carrying on research. Many problems will confront us, and only the greatest coöperation between the industries, the scientific departments of the Government, the technical educational institutions, and the other research agencies will enable us to handle most effectively such problems as will arise during the war as well as during the reconstruction period.

NOTE.—The contributor acknowledges the aid of Dr. W. R. Whitney and Mr. Calvin W. Rice.

TECHNICAL RESEARCH

(C) CHEMICAL INDUSTRIES

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Invention vs. Research.—Invention, discovery, and research are terms which to the lay mind appear to be synonymous. The sooner the public, and especially the manufacturers, get down to the true meaning of these terms, however, the more rapid will be our industrial advancement.

"Yankee invention" is a common expression that well indicates the trend of the American mind. Unfortunately we have not kept pace with our inventions in that we have not given adequate thought to the principles involved; neither have we, as a rule, applied ourselves to systematic research in order to bring these inventions to the highest degree of perfection. We have entirely lost sight of some of our most wonderful discoveries and have allowed other nations to appropriate them for their material betterment.

If we stop to reflect upon the great achievements often credited to other peoples, we will find that many such achievements consist simply in the development of ideas originating in another land. As a matter of fact, those nations which have made the greatest strides have done so by appropriating the inventions of other countries and, through systematic study and research, making them serve as tools and weapons in their own commercial, industrial, and military advancement. We have only to mention

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a few instances to prove the truth of this contention. For example, the submarine is an American invention, developed and perfected by Germany. The airplane is an American invention, brought to a high degree of efficiency by Italy, France, and Germany. The rapid-fire gun is an American invention, sold to and controlled by England, because we were too slow to appreciate its great significance in modern warfare. The coal tar color industry originated in England but was allowed to pass into German hands for lack of proper research organizations to explore its possibilities. The manufacture of optical glass, at one time carried on exclusively in England, was transferred to Germany because of the thorough study the Germans made of the methods of its production. The incandescent lamp is an American invention but was almost lost by this country through the German discovery of the tungsten filament; happily the day was saved through our perfection of the drawn-metal filament and the nitrogen-filled bulb.²

Germany has achieved her wonderful success in chemical industry because she has fostered the idea of investigation, has encouraged her workers to spare no pains in getting at the truth of all things scientific, and has made research a part of the national creed. By this method of stubborn perseverance she has enlarged her industries until at the outbreak of the European war Germany was considered the leader and authority in every chemical subject.

The Results of Our Neglect of Research.—Although we all realized that the world was dependent upon Germany for many articles of commerce, this dependence was not forcibly brought home to us until late in 1914, when we found ourselves cut off from many of the necessities of life as the result of the trade embargoes and the blockade of German ports. The first shortage noticed was that of dyestuffs; it was then that we began to realize how dependent we are upon the chemist. The dyestuff industry in itself is insignificant as compared to many others, but it may be considered the keystone of the arch in its relation

² The editor of this volume in 1907, as an undergraduate at the College of the City of New York, suggested the idea of the nitrogen-filled bulb to his instructor in physical chemistry, Dr. Leo F. Gutman, who did not encourage the pursuit of the idea. Such a bulb was put on the market about a decade later.

to many vital industries, such as the manufacture of textiles, leather, and lithographic inks directly and of clothing, shoes, and books ultimately. As a result of cutting off the importation of dyes business in many lines was affected and many people were thrown out of employment. An even greater calamity threatened, namely, that should we be unable to manufacture textile goods, it would be useless to raise so much cotton. Thus by the cutting off of a few pounds of dyes the industrial life of the Nation was put in jeopardy.

In view of our country's wonderful resources it is hardly conceivable that a small thing like this could create such consternation. It is even less conceivable when we consider that our annual importation of dyes was valued at only about \$12,000,000, or less than the candy sold in a year over the counters of the Woolworth five and ten cent stores. It was not the value of the dyestuffs, but it was the necessity for having them that caused the trouble. In fact, the value of the dye upon a piece of goods is almost negligible compared to the cost of the garment into which the goods is made. The dye used on the cloth for a lady's dress or a gentleman's suit may be worth about fifteen cents, yet without it the garment would be almost worthless.

As soon as the shortage of dyes unsettled our industries a great cry went up all over the land. Newspapers were full of articles on the dyestuff situation, and bills proposing some remedy were introduced into Congress. However, we are now making dyestuffs in sufficient quantity practically to meet our demands. Many of the domestic dyes are superior to those formerly imported, while all of them are well up to standard. The manufacture of dyes has been placed on a financial basis, and we can feel confident that the industry has come to stay.

Another vital shortage became evident, namely, in potash, for which also we had always depended upon Germany. In fact, this dependence had become accepted all over the world, because Germany has a natural advantage in her easily workable deposits. We needed potash, however, in our industries. Every conceivable source of potash was investigated, methods of manufacture were devised, and eventually we found ourselves supplied with sufficient quantities to meet our most urgent demands at least.

The above instances have been mentioned to show how dependent we thought we were upon Germany, but these are not

the only instances where the market had been controlled by German interests. The pharmaceutical and photographic chemicals were largely imported from Germany; chemical glassware and porcelain were "made in Germany" and not in America; and so we could go on with a surprisingly long list. But we have finally realized to what an extent the economic fabric of the Nation rests in the hands of the American chemist.

The Relation of Research to Industry.—Much has been written about scientific research and the necessity of devoting ourselves to the study of problems whose solution would increase our efficiency as an industrial nation. Few, however, have looked beyond the laboratory to see how the results of research could be adapted to factory practice. Some of the large corporations have provided for this need by equipping miniature plant units where processes are tried out on a semi-commercial scale before introducing them into the factory. This no doubt is an excellent practice and one to be commended highly, but it does not entirely solve the problem. What we most need at present is men who can take the results of the research chemist and intelligently interpret them in the language of the shop. To bring about this condition we shall be forced to consider more seriously the question of industrial education for the great army of workers who fill the minor though very responsible positions of foremen and superintendents.

When the time comes that we have men in our plants who can think along scientific lines and who can work in harmony with the technically trained man higher up, we shall be able to get the full benefit of the research chemist's knowledge, carry out the ideas of the chemical engineer, and profit by the findings of the industrial chemist. The directors of manufacturing concerns will then more fully realize the value of employing the type of men that our technical schools and universities are training.

That the above conditions exist was felt by the institution with which the writer is connected, and as a result in 1905 a course was established which has for its aim the training of young men for positions as foremen in chemical industries. In addition to certain fundamental subjects such as chemistry, physics, mathematics, drawing, and shop practice, a striking feature of this course is that a large part of the instruction consists in carrying

out manufacturing operations in a series of model plants. These model plants represent a chemical works, dye works, soap factory, paint factory, dry color and lithographic ink works, varnish works, and tannery. These plants are all built on a sufficiently large scale to be semi-commercial in their operation. In each one the students, working on a foremanship system, are instructed in the handling of materials on a large scale and are taught to operate the various machines employed in the industry in question. The equipment is so designed that practically every form of commercial apparatus is brought into use. Thus during the year each student becomes familiar with and learns to operate the vacuum pan, vacuum pump, filter press, centrifugal machine, steam-jacketed kettle, different types of mills and mixers, as well as special forms of machinery. It is this sort of training that will eventually make it possible to apply properly the facts which we have accumulated.

As a further step in the right direction, mention should be made of the research laboratories conducted by private interests. Many of the great manufacturing corporations of the country, having realized the importance of scientific investigation, have already established large research laboratories. These concerns can afford the outlay of capital necessary to equip and maintain such laboratories and are willing to wait for results. Such concerns as the United States Steel Corporation, General Electric Company, United States Rubber Company, Du Pont Company, National Aniline and Chemical Company, Barrett Company, General Chemical Company, and Eastman Kodak Company are now supporting laboratories, whose staffs are not only engaged in the problems of direct production but are devoting attention to the fundamental scientific theories underlying the industries in which they are interested.

There are a large number of small concerns that cannot afford to establish private laboratories. It is such concerns that need Government or other outside help. In certain branches of industry results have been secured by establishing coöperative laboratories to serve the whole industry. Coöperation of this sort has been developed by the National Cannery Association, the Paint Manufacturers Association of the United States, and the National Association of Tanners. In addition to this many manufacturers have taken advantage of the splendid opportunities

120 AMERICAN PROBLEMS OF RECONSTRUCTION

offered by the Mellon Institute and have established fellowships there for the study of problems in which they are especially interested.

Some Recent Progress.—The immense benefit to be derived from scientific research is well recognized the world over. It is only within the past few years, however, that this fact has been brought home to us as a Nation, but as a result of this awakening the desire for scientific knowledge has been stimulated to a marked degree. The first genuine attempt to develop a scheme of systematic scientific research for the advancement of industry was proposed by the American Association for the Advancement of Science in 1914, when a Committee of One Hundred was appointed to inquire into the proper steps to be taken. The work of this committee was later taken over by the National Research Council, which has expanded its field of endeavor to include many lines of industry. This Council is composed of thirty-five members, each one a chairman of a committee on some special branch of science. Each committee is composed of chairmen of special divisions in that particular field. The chairmen of these subcommittees reach out to the industries and thus get into touch with the problems of the day. Eventually this Council may act as a clearing house for systematic research work.

An awakening has also been felt by the national authorities, and we now find the various departments of the Government making special efforts to bring their activities into closer touch with the needs of the people. Thus the Bureau of Fisheries has done much and is actively engaged at present in making available certain fish products which heretofore were considered of no commercial importance. The Department of Agriculture, through its Bureau of Chemistry and other bureaus, and the Department of the Interior, through the Bureau of Mines, have successfully solved some of the most trying problems of the day.

That we are not alone in coming to the realization of the value of scientific research is shown by the fact that the British Government has appointed a Department of the Privy Council to take up this subject. France has planned for a national laboratory for the same purpose. Australia and Canada are likewise considering what steps should be taken for the organization and development of research work.

A National Research Laboratory.—Up to the present time our own Government has made no plans to establish a national research laboratory. The movement, however, is in the air, and it is to be hoped that in the near future some definite steps may be taken to found an institution for this purpose and thus place scientific research in America on a firm basis. Many suggestions have been offered and numerous articles written to show just how such a project should be undertaken.

In the opinion of many it would seem wise to establish a central research laboratory or bureau where specialists in various branches could be brought together under a single organization. This suggestion has some arguments in its favor, the chief of which is that a closer coöperation and exchange of ideas would thus be rendered possible. This advantage is one that cannot be overlooked. The great disadvantage, however, in such an arrangement would lie in placing one man in direct charge of all branches of research. This might work a hardship on certain important lines of investigation, because no man, however broad, is capable of seeing into and appreciating the problems in every branch of science. Furthermore, a single laboratory would be very apt to become narrow in its sphere of activity and would unquestionably devote more attention to certain favorite branches than it would to others. A central laboratory would not be in touch with local conditions, would not so fully appreciate the requirements of a given locality, and thus could not cater to its needs.

If such an enterprise should be undertaken it would be far wiser to distribute the laboratories among the different States in order that local problems could be studied first-hand, where the workers would be in sympathy with the requirements of the people they are trying to serve.

The expense of conducting separate laboratories would naturally be greater than if the work were carried out under one roof, but the objects to be attained, if successfully consummated, would far outweigh the added expenditure involved. The personal contact of the Director with the people most interested would unquestionably result in closer coöperation than could possibly be obtained by an occasional visit from a man working at a distance of perhaps two or three thousand miles. Further, when one lives in the atmosphere of his work he takes a far greater pride in

bringing his efforts to a successful conclusion, because the results of his investigation are to be of direct benefit, not so much to the Nation as a whole, but to the people in the home town. It may be said that a man should work just as hard and have as much interest in a problem the results of his labors on which are to profit the Nation at large. But the man in New Jersey would have no particular interest in working on lake water from Utah, whereas he would be intensely interested in the study of the grasses from the Jersey meadows. Thus, to get the best results, local interest plays a most important part. At the same time it goes without saying that whatever benefits a section of the country benefits the Nation as a whole.

Those opposed to this plan may say that certain States have no local industries requiring special development. The chances are that there will be several States desiring to conduct research along the same lines rather than that there will be any having no problems to solve. Should several localities have the same problem, a decided advantage would accrue from healthy competition, for local pride would stimulate the workers to give their best efforts, and the exchange of ideas under such conditions would be highly desirable.

An objection to the decentralization of research might be offered in that certain small but vital industries would not receive proper consideration. This phase of the enterprise could be very well handled by making provision for a central laboratory or home office at Washington, where problems of national importance might be studied. These problems might affect the key industries without which the others languish. Of these key or pivotal industries some of the most important are those concerned with optical glass, chemical glassware, chemical porcelain, fine chemicals, synthetic drugs, synthetic perfumes, and the rare earths. The problems dealing with these minor though very important subjects would be assigned to specialists working at the central bureau, whereas problems of a local character or having larger significance would be studied at the local stations.

The home of research has always been in the university. With the establishment of research laboratories of the type mentioned a further impetus would be given to this activity through the demand for properly trained men in special lines. A station located at or near a university would always have problems of scientific

interest the details of which would furnish excellent material for investigation by graduate students of the affiliated school. Not only could the university, through this coöperation, conduct lines of research which would give the desired training in systematic investigation, but the results obtained would be utilized to advantage and not sidetracked or pigeonholed, as is now a common fate of results of students' work. By thus bringing the problems of the station to the attention of the university a closer coöperation would be obtained, which would be to the advantage of all concerned.

To accomplish the aims here outlined we must cast all our efforts into the mold of our broader vision.

VII

SCIENTIFIC MANAGEMENT

BY FRANK B. GILBRETH¹

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AND

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FUNCTION OF SCIENTIFIC MANAGEMENT

The function of scientific management is not only to conserve and utilize materials and workers in the industrial field, in which it had its beginning, but also to furnish methods of conservation and of utilization applicable to all fields of activity. Based as it is upon a determination to submit all problems of management to measurement, in order to formulate scientific methods and to bring practice into line with the investigations, scientific management has evolved instruments of precision and methods of measurement that have resulted not only in making industry more efficient but in determining in the industries and in other fields the transferable units that will make industrial reconstruction of far-reaching economic and educational effects.

ITS CLAIM AS A RECONSTRUCTION AGENCY

Scientific management has to do primarily with methods. The determination of aims and ideals lies in the field of economics

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² B. Litt, University of California, 1900, M. Litt, 1902; Ph. D., Brown University, 1915, author of "Psychology of Management," and joint author with her husband of various books.

and ethics, but, since the success of scientific management depends upon the coöperation of all working under it, the aims have been and must continue to be constructive and educative and the ideals democratic. Therefore, scientific management as a method is uniquely able to cope with the temporary and permanent changes caused by the war, and to utilize present opportunities for the benefit of both capital and labor.

CHARACTERISTICS OF TEMPORARY CHANGES

The temporary changes caused by the war in the industries are significant in that they have affected a great number of industries and all classes of our people. Among them several may be noted as typical.

Appreciation of Importance of Waste Elimination.—First, an appreciation of the necessity of eliminating waste, including waste in materials, waste of the human element, and especially waste of time in unproductive motion. This country has for decades lagged far behind European countries in eliminating waste of materials. It took the shock of the war and the pressing need for conservation of materials of all sorts to demonstrate the importance of saving, of substituting, of utilizing, of supplementing, and of reclaiming. As to conservation of the human element, the standing of the United States among the nations at the beginning of the world conflict was debatable. It is, however, certain that throughout the subsequent years, and the last especially, there has come about a great national appreciation of the need for conserving the human element through prevention of accidents, through sanitary working conditions, through welfare and service work, through the elimination of fatigue, and through economy of motion as methods of compensating for war losses. By fatigue elimination we understand not only eradication of all avoidable fatigue detected by study but also the reduction of necessary fatigue by means of sufficient and properly utilized rest intervals. Time study and motion study in scientific management have been useful in showing that in modern practice, as well as in the theories of the philosophers, time and space are worthy of serious consideration. As a nation we shall need to think more and more in terms of economy of time,

motion, and energy. This means a scientific conservation and utilization of the human element.

New Supply of Workers.—A second change caused by the war that affects scientific management is the new supply of workers available. These enter the industries for two reasons, both because of a need within the industries for an added supply and because of a driving force without, leading patriots to volunteer their services. The new supply of workers come into the industries either as those who have worked before and who are changing their activity or as those who have never before taken part in the industrial life of the community. In either case, there are problems of education and adjustment to be solved. These "new" workers comprise civilian men and women either with no industrial experience or with skill in some unrelated vocation, as well as crippled soldiers who come back into the industries needing to be readjusted to their work in various ways.

Growth in Willingness to Coöperate.—A third change to be noted is the growing willingness of all, within and without the industries, to coöperate. This results in a temporary "plasticity" of working relations and conditions that has its dangers as well as its advantages.

Appreciation of Need for Education.—A fourth change introduced by the war is in the attitude toward education. There is a widespread recognition of the need for some new and more efficient form of teaching, whereby the one best way may be determined accurately and may be transferred by the skilled teacher to the learner with the least possible expenditure of time and energy.

UTILIZATION OF CHANGES

We turn now to the utilization of these temporary changes as readjustment forces. Scientific management includes not only a method of saving and of utilizing but also a method which automatically presents records of the results obtained that demonstrate the value of scientific management both on the human and on the material side. The demonstration of an adequate method of handling a new supply of workers will not only in-

crease industrial production during the war period but will serve as an example of what may be done in assimilating a new industrial force. Having done this work in war time to the general satisfaction, scientific management can continue to be serviceable during the reconstruction period and thereafter.

It will by similar methods assist in readjusting returned soldiers, both crippled and sound, to the industries, and in providing more profitable and satisfying opportunities for those whom the returned will naturally displace. The functionalizing of work and specialization of workers, together with the greatly increased amount of production necessitated by the war, will after the war present a serious industrial problem. Scientific management will, however, aid in its satisfactory solution.

Scientific management is a factor—indeed, a cause of coöperation—between capital and labor. Any management claiming to be scientific which does not insist upon and result in coöperation does not deserve the name and has no element of permanence. The new form of teaching required by war conditions can become a reconstructive agency only if its psychological value is recognized.

The one best way of doing various kinds of war work is being determined and taught. It is rapidly making specialists of untrained workers and is supplementing inadequate training. It is facilitating satisfactory placement. It is resulting in increased product and satisfied workers and is meeting war needs in the army and in industry. The types of activity may change during the reconstruction period. However, the methods of attaining efficiency remain the same. The need is that they be recognized, approved, and installed.

The above-mentioned changes resulting from the war are temporary. The problem is to utilize the benefits therefrom permanently.

PERMANENT CHANGES CAUSED BY WAR

Added to these temporary changes are certain permanent ones which are taking place abroad as well as in this country. We note among these an increase of standardized production on a large scale by means of automatic machinery. This increase is taking place in England, in France, and in Germany and will

mean competition for this country after the war, no matter what trade relations may prevail. We find also a tremendous increase in the use of unskilled labor, including women and partially incapacitated soldiers. Though much of the present unskilled labor may in time become skilled (especially should the methods of scientific management be adopted), there has come about a permanent change of attitude toward the possible labor market. Never again will these countries feel that it is impossible in a short period of time to utilize unskilled labor, even in lines of work where skill has hitherto been believed indispensable.

Another permanent change is the widespread adoption of scientific management, not only in this country but in England, France, and Germany and to some extent in Italy and Russia as well. Before the war the adoption of scientific management in these European countries was a matter of experiment. It was regarded as a distinctly American process which had to fight its way. Because of the great need, however, scientific management has been accepted as an industrial necessity, placing these countries on a new basis whereby they will compete with us during the reconstruction period and thereafter. Besides, the increased cost of living all over the world will make it absolutely essential to adopt scientific management, so as to reduce unit costs and retain low selling prices. Having proved itself of economic value in Europe, it surely will be maintained. The war has caused a broadening of education along general as well as industrial lines. Many untrained workers have received a specialized education. Women have been given an opportunity to prove their industrial worth and adaptability. The efficiency of intensive education has been demonstrated. The need for teaching crippled soldiers and the resulting courses in occupational therapy, mental hygiene, and vocational training—all of these mean a permanent increase and appreciation of the needs and value of education.

A POLICY NEEDED

In order to meet these permanent changes, this country must encourage standardization processes of both machine and hand; insure adequate testing, placing, training, promotion, and utilization of labor; foster individual, social, and governmental ap-

130 AMERICAN PROBLEMS OF RECONSTRUCTION

proval of scientific management by the abolition of all obstructing agencies. Statesmen must recognize the efficacy of scientific management as a remedy for the increased cost of living, since, by the admission of its opponents, it increases production and wages while at the same time lowering cost.

SCIENTIFIC MANAGEMENT AS A RECONSTRUCTIVE AGENCY

There is at the present time and will be also after the war a great need for more production, for a larger amount of things grown and manufactured. No one has disputed the power of scientific management as a producing agency. We need, second, more skilled workers, both now and after the war. No one can dispute the possibilities of scientific management in training specialists, to make any man who has not stopped learning a skilled worker. Third, we need more opportunities for cripples, and, after all, cripples are only specialists of one kind or another. It is not always appreciated that the crippled-soldier problem is simplified by the fact that the cripple has a fewer number of variables, at least from the physical standpoint, than the average man, and that his placement, if it is adequate from the start, is more apt to be permanently satisfactory for this reason. Scientific management enables us to give more opportunities to cripples, since the work is functionalized, since the workers are specialists, and since the transference of skill, from the man who has it to the man who has it not, is amply provided for. Again, we need more and cheaper products if we are to compete in the world's markets. In fact, the whole world must augment production. There is, again, no argument as to the possibilities of having cheaper prices under scientific management. Accompanying this is a fifth need, and that is to pay adequate wages. Those who are not students of economics are apt to say that increased production means permanent lowering of wages. It means lowering of ultimate cost to the consumer but not permanent lower wages to the producer, for facts prove, in England and in this country, that increased production means more work, more opportunities for employment, and better wages.

Necessity of Using It at Once.—There is a need to utilize this period of plasticity. During the stress and strain of the war

both employers and employees are willing to concede things that have at other times been denied. Every one wants to help. The unions are less strict in their demands. The employers are more generous. Every one who has ability is willing to teach. A surprising number of cripples who have made good have offered their services as teachers, demonstrators, and object lessons to the war cripples. Industry is thus plastic. Moreover, many of the returned cripples have a far broader outlook than they had before they were mutilated. They have continued learning. They are apt pupils. Transference of skill to them will be easy. This is the time when improvements should be made. Besides, this is an especially auspicious time to see that the knowledge becomes transferred from the man who has it to the man who has it not, that the information is not regarded as a trade secret of an autocratic few but as public and available to all. There is talk of scientific management confining craft knowledge to the hands of the few. Quite the contrary is the case. The craft knowledge now in the heads and hands of the local few is to be gathered in and supplemented by such knowledge from all corners of the earth solely that it may be studied, rearranged, and then handed out in its best form to every one.

"The One Best Way" as a Constructive Force.—This is the opportune time for the introduction of a new type of education, to consist of teaching the one best way,³ and that only. There has been much waste, during the past, from teaching several wrong methods simultaneously and expecting a more or less well informed worker to choose for himself which is the best. There has even been the suggestion made that the experienced workers shall not do the thing the same way every time but vary their method "to avoid monotony." Now scientific investigations prove that monotony is *not* the result of doing the thing the same way every time but of failing to utilize habits and thus forcing the conscious will to follow a series of uninteresting repetitive activities.⁴ Few are capable of making correct decisions between more or less different methods, even though they have the analyzed laboratory data at their command. Even an

³"The Place of the Educator in the New Education." Presented before the American Association for the Advancement of Science, Section L, December, 1917.

⁴"Applied Motion Study," pp. 174, 175, 178, 179 and 208.

132 AMERICAN PROBLEMS OF RECONSTRUCTION

expert in an activity may be unable to describe why he does the thing as he does it. All of us are wearied by the necessity for making unnecessary repetitive decisions. The new type of education, teaching the one best way until the learner has perfected this to the extent that it becomes a habit, insures that an activity will be performed habitually in the best fashion possible, and that there will be no delay due to habit interference and no weariness due to unnecessary decisions. It allows improvement from the highest state of advancement of the past. This new type of education is applicable to all, not only to the "one in ten" to whom, according to labor leaders, advancement is limited, but to the "ten in ten"—to every worker of the organization.

A PROBLEM OF EDUCATION

In its final analysis the entire after-war problem resolves itself into one of education. Only by means of education can individuals in this country become convinced of the serious conditions that await us and of the efficacy of scientific management in solving the reconstruction problems. Only through education can both capital and labor be convinced of the need of internal coöperation in order to meet increasing external competition. Only through education can the economists convince the people of the country that profitable manufacture means prosperity for the individual; that increased production means ultimately lower cost to the individual and an increase in industrial opportunities. Education will spread the doctrine that elimination of waste both in materials and in the human element means increased prosperity; that fatigue is the prime human extravagance; that motion economy means conservation and utilization. We need specific education in scientific management for our managers and superintendents in the schools of commerce, in the engineering professions, and in the industries; for shop foremen in extension night classes and for apprentices in continuation classes by day.

SCIENTIFIC MANAGEMENT AS AN AGENT OF DEMOCRACY

Finally, if this country is to stand, as President Wilson has declared in such masterly fashion, for democracy—that is, for

political and social equality—it is necessary that we introduce scientific management in order that all men have equal opportunities. The great opportunity that must be open to all is the opportunity for education. Many likenesses between men arise because of likenesses in educational opportunities. Differences in men come largely from differences in education. One man has a greater power of achievement than another largely because he or his ancestors have had greater opportunities. Now scientific management stands for equal industrial opportunities for all. It stands for adequate selection and placement of workers. It creates adequate opportunities for promotion for which it prepares the worker. Above all it stands for efficient learning and teaching. It should become known and available to our workers in the industries. It should be at the service of industrial as well as war cripples. It is an important factor in reconstruction. It will help us not only to win the war but to “win the peace.”

Its Place in the World Development.—We also claim that it should be and will be at the disposal of the entire world. In the ultimate analysis, while we have an important problem in after-the-war competition, this is not so important as the after-the-war coöperation. It will be necessary for all nations to coöperate to put living on a scientific basis, in order that all may advance and compete on the highest possible planes. To this end it is necessary that we emphasize our common needs and our common duties. All nations alike have the duties of elimination, of conservation, and of utilization; all are faced with the problem of the crippled soldier; all must eliminate unnecessary fatigue; all must accomplish their aims with motion economy; all must consider necessary savings in time and energy. It is for this great people of ours to undertake scientific management not only for our own advancement but for the advancement of the world. Although we are in the war and expecting to take a leading part in its activities, there remain ample power and force in this country to undertake this reconstruction work even in this time of struggle. It is a wonderful thing to be willing to die for one's ideals. It is not less wonderful to be willing to live and sacrifice for them. Especially do we owe it as a duty to our young men who are offering their strength, their youth, and their very

lives upon the battlefield that we at home shall prepare a better work-place, a better living place for them to return to than they have ever known before. We owe it to them to develop the highest type of training both in war-time and in peace-time activities. We owe it to them to put our industries on a scientific basis, to create places to utilize their activities in a finer way than in the past.

Its Call to the Worker.—It is, therefore, for those who are not acquainted with the principles of scientific management to become acquainted with them. It is for those who have criticised destructively to commence to criticise constructively. It is for all, disregarding particular features that do not appeal to them, to grasp the underlying principles of scientific management and to apply them each one in his own particular field. Foremost in the activity should be the workers of the country. Upon them come the burdens of war; upon them fall the burdens of peace. Now they have at hand a great chance to lighten these burdens, to make their necessary activities interesting and profitable, and to utilize this new force to advance the cause of the brotherhood of man. Scientific management is essentially democratic. It is the part of a democracy, therefore, to lead in its adoption and to practice its doctrine for the enlightenment of the world.

VIII

READJUSTMENT OF INDUSTRIES

(A) STEEL

BY CHARLES M. SCHWAB¹

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Introduction.—There is just one task at hand. That is to win the war. It is our immediate duty and our pressing need. To it every ounce of needed energy should be directed. From it no power should be diverted. The war has Priority "A" demand on all matter, on all energy, and on all thought.

But after this urgent demand is met there is no more necessary work than to plan for after the war. This is a work worthy of an intelligent people. It is a task for those of our men and women whose services have not been commandeered for the war. Each industry has its own peculiar after-war problem. No one man can know all the phases. Although individual manufacturers may be giving serious thought to the problems at their own plants or to small sections of their various industries, there might well be a committee of each industry to study what are the temporary effects of the war and what permanent changes it has brought about, as well as to devise methods to make easy the transition to peace and to plan for an after-war policy in each industry.

Bethlehem's problem is in a way an epitome of the national problem. This corporation is one of the largest munitions makers in the United States and therefore supremely faces the need for a change in the nature of its production. Its immediate transition problem is typical of the problem confronting all the war in-

¹ Entered service of Carnegie Steel Company and became its president from 1897 to 1901; president of United States Steel Corporation, 1901-3; director in various industrial companies.

136 AMERICAN PROBLEMS OF RECONSTRUCTION

dustries. In addition, Bethlehem is one of the largest shipbuilders in the United States, engaged in a typical peace industry which will be busy for years after the war. Its post bellum policy will reflect a national policy. While Bethlehem's problems and plans in their general aspect may be of national interest, they are typical, and I shall deal with the steel industry of the country as a whole.

No Abnormal Expansion of Capacity.—The one outstanding fact in the consideration of the after-war problem in the steel industry is that our production has not grown extraordinarily. The country produced 31,000,000 tons of pig iron in 1913 and 39,000,000 tons in 1917, an increase of 8,000,000 tons, or about 26 per cent. Both these years show record production. There have been more striking increases in other four-year periods, as shown herewith:

Year	Production	Increase in 4-Year Period
1899.....	13,600,000 tons	
1903.....	18,000,000 tons	4,400,000 tons=33%
1907.....	26,000,000 tons	8,000,000 tons=45%

Even in a single year there have been as great or greater increases in pig-iron production, although the fluctuation may have been due to depression or boom and may not have been between two record years. A table illustrating the increases follows:

Year	Production	Increase in 1 Year
1904.....	16,000,000 tons	
1905.....	23,000,000 tons	7,000,000 tons=44%
1908.....	16,000,000 tons	
1909.....	26,000,000 tons	10,000,000 tons=62%
1911.....	24,000,000 tons	
1912.....	30,000,000 tons	6,000,000 tons=25%
1914.....	23,000,000 tons	
1915.....	30,000,000 tons	7,000,000 tons=31%

The growth in the four-year period from 1913 to 1917 is less than the relative growth in many other four-year periods. It

is even less than the upward fluctuation in the annual production from year to year in many cases. We may therefore conclude that the war did not overstimulate steel production. The present capacity might have been expected after a normal four-year period beginning with 1913.

Demand for Steel Deferred.—One of the striking facts in the present situation is that much of the normal demand for steel has been deferred as a result of the war. It has been temporarily displaced by more urgent war needs. An analysis of the ultimate destination of the sales of any large steel company or of the production of the industry as a whole for the years 1917 and 1913 shows how the output for peace purposes has been curtailed in many lines and even entirely eliminated in some.

For instance, the building industry has been greatly restricted, cutting down the normal demand for structural shapes and other steel products. Early in the war this had been a natural result of rising prices. The value of building permits in twenty principal cities was only \$397,000,000 in 1917, as against \$622,000,000 in 1916, a decrease of 36 per cent. Compared to a normal peace year like 1912, for instance, with its \$554,000,000, the year 1917 showed a restriction amounting to 28 per cent. More recent figures show a tremendous reduction, running as high as 60 per cent. The value of building permits in these twenty cities for the month of March was in 1918, \$19,000,000; in 1916, \$55,000,000; and in 1914, \$55,000,000.

In addition to this natural decline of building construction, an official order was issued recently by the Secretary of the Treasury that no new public buildings not needed for war purposes be started while the war is in progress. Although the Government construction program, according to the estimates made by the Treasury Department, will require \$3,500,000,000 for fortifications, warehouses, cantonments, and industrial housing facilities, yet there is a latent normal demand which has been suppressed. Now, whether new structures are erected or not, the usual processes of increase of population, depreciation of buildings, fire and accident losses are still operative and are piling up a cumulative demand which will become effective at the end of the war. Of course, price will be a determining factor in the after-war demand for steel. The lower the price of building

materials the greater will be the activity in building construction. The three million tons of structural shapes produced, say, in 1913, multiplied by the number of war years during which normal construction has been reduced, will give us an indication of the accumulated demand for steel. Some estimate it at a billion dollars a year, in all lines. This deferred need will operate like a shock absorber when the war demands cease.

What is true of building holds also for other industries that consume steel. The automobile industry has been held back both by the increased cost of materials and by the difficulty of obtaining them at any price. The National Automobile Chamber of Commerce voted a 30 per cent decrease in the production for 1918, and the War Industries Board ordered a substantial reduction in output. Further enforced curtailment is expected. The automobile has come to be a useful part of the modern method of carrying on business and of living, especially in small communities. The deferred demand for automobiles, like that for building materials, will become effective when the war is over.

In much the same way the normal needs of the railroads have been inadequately met. The orders for equipment as well as for track and structures prior to the war had been curtailed owing to the poor credit of the roads, as a result of their inability to raise rates. True enough, large orders have been given recently by the Government. However, one feeding will not restore a starved man. Recent orders will hardly fill the total need arising from enforced skimping of railroad maintenance. In fact, they will probably only relieve the acute deficiency. There is a large unfilled demand for railroad steel which will act as a buffer in warding off any depression incident to the transition to peace. The Government will be able to aid in minimizing the difficulties in industry or the depression in the labor market when war orders cease, if it will give orders for railroad equipment and for rails for development work in those territories in which new building was retarded for lack of credit. The foreign governments that own their railroads have in this way lessened or even prevented business depression and at the same time have wisely made their necessary purchases at the low prices of a slack period. Under our old system of railroad management the reverse was true. The railroads had to stay out of the equipment market during a depression, for lack of funds. When boom times came and the

deficiency in rolling stock became acute, orders were placed in a congested market and at high prices. If we benefit by lessons of the past, a wise policy will enable us to pass through the transition with comparatively little disturbance to labor and industry. Of course, during the transition to peace there will be a "dead point" in the cycle of business. We shall reverse the direction of industrial activity. The nature of the output will be different. The conditions of work will be radically altered. Some dislocation can not be avoided. Its extent depends upon the wisdom of our leaders and the counsel of men of affairs.

100 Per Cent on Government Work.—At a meeting in New York on April 26 the steel interests of the country pledged themselves, at the request of the War Industries Board, to subordinate all other lines of business to the call of the United States Government, either for its own needs or for those of its Allies. According to recent reports of the *Iron Age* 100 per cent of the output is in many lines of production being applied to Government work.

In addition, stocks in jobbers' hands are very slight—in fact, are at a lower level than at any other time since the war began. This is naturally so. The incentive to buy, store, and sell which regulates a free and fluctuating market was missing under the régime of even and fixed prices. Further, jobbers will have difficulty in future in obtaining any supplies unless they have a priority certificate, as evidence of the essential nature of the industry to which the goods are destined. This dual condition of the utilization of 100 per cent of the output on Government work and of the lack of accumulated stocks gives a hopeful indication of the prosperity of the steel industry after the war, when the normal demand, accumulated though deferred for a long period, comes into play to absorb the supply which the Government will no longer need.

The Conversion of Plants.—To understand the after-war situation fully, one must realize that even if at present the Government takes the entire output of steel mills, most of the plants will not necessarily be changed. For instance, the production of semi-finished and finished products has gone on during the war as it did during peace. There is no change in the plants produc-

ing billets and bars, ingots and castings, rods, sheets and plates, hoops, bands and ties, nails, pipe, rails, rivets, skelp, structural shapes, tin-plate, and wire. It is because modern war is a conflict of nations rather than of armies that our war production is devoted not alone to ammunition for the army, but to the usual products needed by a belligerent nation, straining itself during the emergency.

Many of the plants making even the highly finished products may also be used after the war. In some plants it may be necessary to scrap specialized machinery designed for the production of munitions. But even in these plants the buildings may be used, as well as standard staple machines like lathes, planers, milling machines, and presses.

New Uses for Steel After the War.—In addition to the exercise of a deferred demand which will absorb the supply of steel in many lines, there will be new uses both temporary and permanent for American steel. Among the temporary demands will be the rehabilitation needs of Europe. These were estimated to exceed \$6,000,000,000 at the end of 1916. The National Foreign Trade Council made this estimate based upon the needs of Belgium and northern France for machinery, tools, raw materials, and building. The figures seem to have been carefully determined. Other later estimates of rehabilitation needs exceed \$10,000,000,000. True, it will not all be in steel that the work will be done, but in reconstructing buildings, factories, homes and schools, bridges, railroads, and machinery steel will be a not insignificant factor.

In this field, however, we shall not be the only sellers. England, France itself, and perhaps Germany will offer steel for the purpose of rehabilitation. The extent of our participation in the reconstruction work will depend upon our willingness to extend credit to the devastated countries, upon skillful and sympathetic salesmanship, upon the degree of coöperation with customers, and, last and most important, upon the element of price. In war time demand is pressing. The primary need is goods. Price is a secondary consideration. In times of peace, however, the satisfaction of demand can wait on price. There is lacking the compelling influence of war that insists on delivery regardless of

cost. It is these facts that American steel interests will need to bear in mind in sizing up the after-war situation in their industry.

The permanent new uses of American steel after the war will be in the shipbuilding industry. The total world's shipping before the war was about 50,000,000 tons. As a result of the destruction of both Allied and other vessels, this has been reduced to about 40,000,000 tons, to say nothing of the obsolescence of German and Austrian ships interned or blockaded in neutral or German ports. The annual increment of new shipping before the war was about 2,500,000 tons. American shipping in 1913 amounted to 7,900,000 tons, of which 6,900,000 tons was engaged in coastwise trade and only 1,000,000 tons in trans-oceanic trade. If after the war we have a foreign trading fleet of between 5,000,000 and 10,000,000 tons, and if we shall need to replace say 5 to 10 per cent of our tonnage annually, this will create a new and a permanent demand of considerable magnitude for ship plates and other steel supplies. In addition, we may have the opportunity to build ships or to sell plates to some of the northern European countries or to the South American countries whose merchant fleets are growing and who had orders with us before the requisitioning order affecting foreign ships went into effect.

Export Trade in Steel.—Our steel situation after the war is vitally dependent upon the extent of our exports. Before the war England, with a much smaller production, exported several times as much as we did in tons and many times more in percentage of total production. The same holds true for Germany, which exported about twelve times as much as we did relative to total production.

However, many circumstances have beneficently conspired to change our position. To begin with, the cost of production in Europe has been rising continuously toward the American level. Wages are high there to-day. When the European workman raises his standard of living to the level enjoyed by the American, it will go a long way toward removing the difficulty the American producer encounters in entering foreign markets. The war seems to have brought about this condition. Further, the export bounty, dumping, and other dubious German practices, which we condemned and eliminated with the evil practices of trusts in our domestic affairs, will no longer be tolerated in

international affairs. Germany will no longer be permitted to undersell her competitors by the use of questionable methods. Then, again, the Webb Export Law, recently passed, is of utmost importance. It is one of the wise provisions which will confer on the small producer the same advantages that the big companies enjoy. The union of small exporters will be able to extend their foreign trade far beyond the power of the unaided individual.

Another factor is the renaissance of the American merchant marine. The amazing development of German commerce was due in no small measure to the growth of its ocean transportation. The supremacy of England, the prestige of France, the importance of Holland, in international commerce, arise from their control of ocean transportation. We have at last taken measures to procure an adequate merchant fleet. The American exporter of 1920, we hope, will enjoy advantages that he did not possess in 1910. And finally, our financial facilities for exporting have improved. Thanks to the founding of the Federal reserve system and to the creation of foreign trade acceptances or commercial bills of exchange, our exporters can sell their goods abroad on credit and discount their paper at the banks. If we can develop a large discount market, such as European countries possess, our financial facilities for handling our exports will be completed. Let us not forget that it was the long-term credits extended by Germans and rediscounted by them in the English banks that explain Germany's rapid development in commerce and industry, although the English exporter did not receive the facilities which the German did in England after his local German bank indorsed his drafts on his foreign customer. We have developed these instruments of foreign trade—legal permission to form export combinations, a merchant fleet, and adequate banking facilities. We have the steel. Its quantity is ample. Its quality is unexcelled. Our foreign trade should be invigorated. If it is, we shall have no difficulty in replacing during peace times some of the huge quantity of war exports now going to the belligerent powers.

Research.—No survey of the after-war condition of the steel industry would be complete without a reference to the place of technical research in it. It is with satisfaction that I refer to the splendid work of the late Frederick W. Taylor, done in the

Bethlehem steel plant, in the development of high-speed steel. Indeed, we have made progress in various other fields, as in the ferro-alloys, but all the nations are feverishly working under the stress of war, and we must not relax our efforts.

Technical research for us means not only the improvement of quality and the development of new processes, of new uses, and of new alloys. It means this in all countries. But for us particularly it should mean the lowering of the cost of production. I recall seeing one of the English journals² that referred to the advantages which the British steel industry enjoyed because its coal, its iron ore, and its seaports are within a small radius. On the other hand, we haul our ore one thousand miles to our furnaces and then ship our finished products another half thousand miles to the seaboard. Nature may have been bountiful in conferring her gifts upon us. But in scattering them she is calling forth supremely the ingenuity of the American to overcome the handicap of distance.

To compete abroad we must have lower costs. These lower costs must be attained by means of higher wages. To insure the continuation of high wages we must turn to scientific management and coöperation with labor to increase output. Our lower costs further must be attained in spite of higher transportation costs. We cannot rely on preferential railroad rates for steel produced for export purposes. We must look to chemical and engineering research to effect economies which will compensate for the separation of our ore and of our coal. We shall need to rely on our scientists and on their research institutions more than ever before.

The New Outlook.—In conclusion I cannot refrain from saying that we shall need a new and a national outlook on our industrial life. The lesson of the war is the value of coöperation. We have seen its results in the gigantic, successful industrial efforts put forth in the last year. The warning of the war is the danger of suspicion and of suppressed antagonism. What we want is a frank and a helpful attitude. The loss of production through strikes and lockouts does harm to the Nation as well as to the parties involved. Similarly, restrictive laws against industry

² *Engineering*, London.

144 AMERICAN PROBLEMS OF RECONSTRUCTION

benefit the Nation not at all. Every industry adds to the common welfare. Proper understanding, sympathy in its widest sense, and coöperation upon the part of all the elements in the community are alike the key to national as well as to international peace and progress.

READJUSTMENT OF INDUSTRIES

(B) CHEMICALS

By BERNHARD C. HESSE¹

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The apparently permanent changes brought on by the war in chemical industries of the United States may be broadly grouped as follows:

1. Awakened mental attitude of the public.
2. Increased familiarity of the people in general with the bearing of chemical industries upon our national economic life.
3. Public determination to become independent of other countries in this sphere.
4. Better understanding of the financial aspect of chemical enterprises.
5. Increased diversification of our output.
6. Increase in experienced labor and superintendence in chemical industries.
7. Actual additions to manufacturing capacity.

Prior to August, 1914, the attitude of the public mind toward our domestic chemical endeavor could hardly be termed solicitous or even interested; "indifferent" might be a better designation. Within the first two months of the war the country generally awoke to a realization of the conditions that had existed for at least a generation, namely, that for many of the chemicals needful in our domestic industries, themselves not strictly chemical,

¹B. S., 1893, University of Michigan; Ph. D., 1896, University of Chicago; research chemist with the Badische Anilin und Soda Fabrik, Germany, 1896-1905; consulting chemist, 1906—; devised a system of control of coal tar dyes in food coloring in connection with the Pure Food Act; initiated the production of liquid chlorine in the United States; author of various articles on coal tar colors.

we were wholly or in part dependent upon foreign sources of supply. In the case of such substances as ammonia salts, acetic anhydride, barium chloride, barium nitrate, bleaching powder, sodium cyanide, yellow prussiate, sodium nitrate, sodium hydrosulphite, oxalic acid, and zinc dust, we had domestic sources of supply of varying extent and capable of expansion. But in the case of other chemicals, such as carbolic, salicylic, phthalic, tartaric, and citric acids, magnesium chloride, and manganese or potash products, we were wholly at the mercy of foreign countries for either the raw material or the finished article. In the case of certain metals, such as magnesium and its alloys, as well as of synthetic dyes, drugs, flavors, and photographic developers, we were subject to external sources of supply. Our dependence upon foreign countries for many vegetable and animal raw or finished materials was also forcibly brought home.

THE ATTITUDE OF THE PUBLIC

The public was not at all slow in expressing in terms of great disapproval its opinion of what it considered to be the backwardness of the American chemist and indignantly, even hysterically, demanding the immediate removal of conditions which it had itself not only permitted but actually encouraged to grow up during more than a generation. Soon public opinion calmed down and a period of self-examination intervened. As a result we came to realize that in the past we had paid insufficient attention to the diversification of our industries and particularly to the fortification of those that have since come to be known as "key industries," such as the manufacture of chemicals.

NATIONAL TEAM WORK

Convinced by the logic of events of the fallacy of viewing our industries piecemeal or locally, the public has awakened to the fact that there must be national team work among all our industries, that they must constitute a national unit of the highest efficiency in output, and that they must embrace a wide variety of products, to the end that our whole industrial fabric shall be self-contained to the highest degree attainable. That the public maintains this new viewpoint is, I am firmly convinced, the fun-

damental condition upon which alone a complete and diversified domestic chemical industry can be developed or perpetuated. As soon as the public loses that view, retrogression in the industry may be expected.

THE EFFECT OF THIS NEW PUBLIC VIEWPOINT

One of the principal factors in the ultimate development of this new public viewpoint was the campaign of public education vigorously carried on in our daily press and in our periodicals. As it progressed, it lost much of its previous bizarre and fanciful character and resulted in a competent treatment of the subject not only in periodicals but in books. The public has had an opportunity of convincing itself from its various unsatisfied needs that there is a close if not always obvious connection between chemical industry and the things that we wear, eat, and drink or that enter into a thousand and one articles of daily use, such as our books, our houses, and our means of communication.

With this interdependence forcefully brought home, public determination to be self-sustaining has grown and made itself heard in terms not to be ignored. All this gives good ground for the hope that this change will be permanent.

OUR INCREASED CHEMICAL INDUSTRY

Long before the public gave convincing expression of its change of heart, those engaged in domestic chemical enterprises, from one motive or another, took energetic steps to contribute to our national independence in this direction. As a result we now have more intense and diversified production in almost all departments of chemical endeavor, particularly in the direction of explosives, coke-oven materials, electrochemical products, potash, glass, ceramics, porcelains, manganese compounds, liquefied gases, acids, salts, alkalies, leather and leather substitutes, synthetic remedies, drugs and dyes, barium products, nitric acid and ammonia, metals and metal alloys, than ever before. This has necessarily brought with it added manufacturing facilities and experienced labor and superintendence.

From July, 1914, to the end of January, 1918, the capitalization of new drug, dye, and chemical enterprises in the United States

148 AMERICAN PROBLEMS OF RECONSTRUCTION

exceeded \$338,000,000. This gives a measure of the increased national understanding of the financial aspect of the chemical industry. It is a matter of congratulation that in that huge total there has been relatively little of failure or of misrepresentation. In the five years ended June 30, 1914, domestic chemical enterprises grew relatively faster than our industrial enterprises as a whole. With the added impetus to the domestic chemical industry as a result of war conditions, the census figures ought to make a very impressive showing for the year 1919.

PERMANENT CHANGES RESULTING FROM THE WAR

Which of these changes, due to the war, will actually be permanent it is impossible to say. Whether the changed attitude of the public remains permanent or not, it would be too much to assume that we shall lose all that we have gained. Yet it is, perhaps, too much to hope that even under the best conditions we can hold it all. But if this altered view is maintained, there is every reason to believe that we shall retain the whole advance in many lines, though we may lose ground here and there. We may look for setbacks in the production of those chemicals in which our domestic raw materials are either more refractory or less plentiful than the foreign supplies, as in the case of barium and potash products, and in those branches in which we have not yet acquired the necessary manufacturing technique or "art," as in the production of glasses, ceramics, or porcelains. In the first two classes the handicap may be overcome through research. In the third class sufficient opportunity to acquire the lacking technique must be provided, either through private industrial effort or through public technical education.

OUR REAL OBJECT

Personally, I am decidedly optimistic as to the general status of our domestic chemical industry after the war. However, that does not mean that at that time we can sit down, fold our hands, and let things slip back into the former state. That will never do! On the assumption that the public attitude will be maintained in good faith, it is more than ever incumbent upon those of us who are engaged in chemical endeavor, industrial or otherwise, to prove

by our resourcefulness that we are worthy of the Nation's trust. That we will do so is only reasonable to expect. The recent history of the American chemical industry has proved how under prevailing conditions every opportunity was fully utilized. The task expected of us is not an essentially new one. The only new features in it are an expanded field of opportunity and a live and sympathetic public opinion.

TEMPORARY CONDITIONS RESULTING FROM THE WAR

The resulting temporary conditions were diverse. We were unable to obtain certain chemicals from former foreign sources. Some of them we could not make, because of lack of supplies of raw materials, domestic or foreign. The raw-material shortage itself was due either to insufficient supply for normal requirements or else its diversion to war uses by our Government or by others. As an illustration, take carbolic acid. Of its constituents we had been producing enough sulphuric acid, caustic soda, and benzol to make all the synthetic carbolic acid the country normally required. But we did not manufacture enough of them to make good the carbolic acid shortage, which was created by the closing of foreign sources of supply and by vastly increased demands for carbolic acid by the makers of picric acid, itself practically a new product of the domestic chemical industry. But that shortage was remedied. Then came the added difficulty of making enough nitric acid to convert this carbolic into picric acid. Next appeared the further problem of making enough nitric and sulphuric acids to make all the T.N.T. demanded, and this required operations on a vast scale. Finally came our own entrance into the war, to add to these strains.

To take another example—toluol. After toluol in excess of the Allied T.N.T. requirements was made available for benzoic acid, saccharine, and dyes we entered the war ourselves, and toluol had to be diverted to needs of our own Government. What is true of toluol, benzol, sulphuric acid, and caustic soda holds equally true of a very large number of other chemicals, so that after the war we should produce them in abundance and at costs as low as in any other country. Whether we shall be able to absorb these enormous outputs is a question which probably no man would undertake to answer. The chances are that for some

time we shall not be able so to absorb them. More than this I do not feel prepared to say.

For other substances, like potash, it is possible that substitutes satisfactory in war time may not be so in peace times. Yet those best in position to judge are confident that for many purposes potash has been permanently displaced. In the case of synthetic drugs, dyes, and developers, it is merely a question of time. The pressing needs must first be met. The less pressing will simply have to wait their turn. Eventually all necessary chemicals will be made here, and the substitutes we have been compelled to employ will be displaced by the genuine product of domestic manufacture.

No matter when the war ends, to-day or five years from to-day, we shall have to expect that the American market will offer foreign chemicals or domestic substitutes. But we shall have to turn our attention to the production of those still missing. We shall then have sufficient opportunity to "round out" our lines of manufacture.

READJUSTMENT AFTER THE WAR

The history of the American chemical industry shows that, in general, the more readily the basic chemicals become available the more rapidly is their domestic use extended. There are but few exceptions to this rule. The confident expectation prevails that before long the greater part of our production of chemicals in excess of our immediate requirements will have found profitable use in our industries. However, we must not blind ourselves to the fact that much hard work, both in planning and in execution, may be necessary to accomplish this end.

NATIONAL ECONOMIC POLICIES

To attempt now to lay down any hard and fast economic policy would be futile. However, to aim to secure independence in all commodities, to create a national industrial unit which by the initiative and resourcefulness of its scientists shall be self-sustaining—this is the best general policy to follow. To work out the details in each case or group is a subsequent need.

Our Federal Government is taking active steps to inform the chemists of this country as to the nature of the chemicals—raw,

intermediate, or finished products—which heretofore came to us from foreign sources, the exporting countries, and their relative participation in such supply. Federal laws have been enacted whose intent is to help the upbuilding of an independent chemical industry. The National Research Council is endeavoring to co-ordinate all our resources to the same end. Our educational institutions, our research staffs, and our chemical manufacturers and merchants must all coöperate with each other and with the governmental agencies if we are to reap the full benefit of the public measures designed to achieve our independence. If public measures are not energetically followed up by private enterprise and individual initiative, such measures cannot of themselves give us the desired independence. Responsibility for attaining this end rests not upon the public or the Government but upon us as individuals.

Any public measures that are instituted to safeguard those who enter upon new chemical enterprises have for their purpose making the country independent. Therefore, those who enter any of these favored fields must assume the task of making the country independent in the whole of the field they select and not alone in that part which happens to show immediate or large return. The less known and less profitable products in the field will also have to be made and the unexplored portion investigated here, if full faith with the public is to be kept. If, for example, ten articles make up the known whole of such a selected portion, we dare not merely make the easy or the profitable four. We must make the more difficult or less profitable six as well, so that we may have at all times adequate domestic supplies. Further, we must also lead in the development of all such fostered industries and wrest from them through investigation, research, and application all that ingenuity, foresight, skill, and courage can make them yield. We must not be "trailers" to any one!

Can not a democracy by voluntary effort achieve all that an autocracy can compel?

IX

CAPITAL, LABOR, AND THE STATE

By LOUIS B. WEHLE¹

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An attempt to prophesy now as to the relations after the war between capital, labor, and the State would be an essay into a wilderness of contingencies. The raging conflagration in which America has only just begun to take a fully conscious part contains every possibility and no definite probability. In many things the impossible has become the usual and the usual the impossible. Therefore, we shall chiefly examine the actual changes that have taken place in the relations between these three divisions of the community during our first year in the war, try to appraise the forces which seem to account for those changes, and inquire in what direction these forces seem to be leading us.

CAPITAL AND THE STATE BEFORE THE WAR

Before the outbreak of the war industrial concentration was leading this country steadily into political concentration; the individual States were losing their relative political importance, and control had entered into a period of definite nationalization. The period from the Sherman Law of 1890 to the Clayton Act and

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the Federal Trade Commission Act of 1914 covered the apprenticeship of America in the control of concentrated industry. In the later year we had come to know that illegitimate control of the market should be quickly identified by its industrial and commercial manifestations, that certain business abuses which are typical elements in such control must be penalized, and that pernicious restraint of trade is not preventable so much by punishing restraint as by vigilant national administrative regulation of the practices of trade—a regulation centered in the National Government.

Industrial Concentration Followed by Nationalized Control.—Thus political concentration was resulting from industrial concentration. The enactment of the Sherman Law by Congress in 1890 had been followed by a veritable crop of Sherman laws in the States. But in the past ten years, confronted with the magnitude of the concentration problem, the States in the main had tacitly left the Federal authority to deal with it. Control of railroads had followed a similar course, the intrastate regulation by a State being inherently a matter of Federal concern because of the interdependence of all transportation. And since the Minnesota Rate Decision in 1913,² in which the Supreme Court of the United States declared that Congress could at any time take the intrastate regulation of carriers under the exclusive control of the Federal Government, it had been generally felt that such exclusive Federal regulation was closely impending.

Before April, 1917, then, reliance upon Federal control was becoming to an increasing extent a mental habit of the people. Witness, for instance, the great advisory and coöperative service by the departments of Agriculture and of Commerce and their daily part in the life and work of the farmer, the merchant, and the manufacturer; the policing by Federal agents, under the Harrison Narcotics Law, of the sales of every corner drug store; the Federal employment exchanges connecting the man with the job inside of the somewhat blurred State boundaries; Government aid to the States in building roads and in carrying on industrial education; the work of the Federal Reserve Bank system, in directly facilitating and protecting individual commercial credit transactions; the actual making of loans by the Federal Farm Loan

² 230 U. S., 352.

Bank out of Government funds directly to farmers; and finally, by constitutional amendment, as if for financing from vast accumulations of private wealth these expanding national functions for the general welfare, the exercise of that long-withheld power—the power to levy taxation on private incomes. Let it be remembered, too, that most of these developments came under the administration of a political party traditionally opposed to all centralization of national power.

CAPITAL AND THE STATE DURING THE WAR

What does this centralization of State control mean? It means that the futile grapplings of the separate States with large industrial problems are practically at an end. It means that before the war the Government of the United States was beginning to develop sufficient power to deal with capital effectively in the interest of other groups. The Federal Government's direct regulation and control of industry, to the extent that they have thus far taken place in the first year of participation by the United States in the war, are by no means so startling a departure as some would have it. The war, by making necessary a great intensification of our industrial processes and at the same time sharpening our sense of the public interest, has driven us at once to methods toward which we were tending under normal industrial life. Tendencies are swiftly developed into accomplished realities by war. Government control of railroads and some of the other forms of Federal war control, as, for instance, control of fuel production, regulation of profits on necessities of life, and fixing of prices for foodstuffs, are, as forms of regulation of industry, not inconsistent with the established industrial system and do not run greatly beyond the powers for which the Federal Government was beginning to reach before 1917. Private profiteering was beginning to be a matter of governmental concern in peace time and was coming to be dealt with through State regulation. Suddenly war made it acutely a matter of public concern and brought us face to face with the fact that in an industrial community practically all property and business related to the necessities of life are really affected with a public interest and should, as had the railway business, come under State regulation. The old public offense of hoarding the necessities of life for a high

market, denounced as a crime under the laws of England in the reign of Henry III and relieved, there, from that status only in 1844, has in war time become once more an offense under the law.³ When, at the same time, we see our now strongly centralized democracy assuming the power to buy seed,⁴ fertilizer,⁵ and food-stuffs⁶ when they are plentiful and to sell them again to the public, we should not be greatly shocked if we were told that hereafter in times of peace the function would be exercised by the Government either of purchasing, storing, and distributing food-stuffs or of so controlling their purchase, storage, and resale as to eliminate unreasonable profits. A successful experiment is apt to produce a habit.

Disintegration of Alliances between Financial Groups.—It is a peculiar fact that at the very time when the Government is relying upon accumulated wealth to finance the war and to carry on its production it is of necessity lending itself in large measure to forces which from all directions are undermining the political and social strength of capital. Probably the most signal instance of this—to be presently discussed—is the Government's promotion of labor's new activity in determining wages. That has been due in part, of course, to the tangibility of property and the intangibility of labor. But capital has lost power in other directions and for other reasons.

In war time the large holders of accumulated wealth have lost their solidarity. Capital has become as a house divided against itself. During times of peace, when public efficiency as a motive was almost a stranger to us, all groups in the world of capital worked in close harmony. A public movement against any group naturally brought from the rest a hostile reaction, a mustering of forces—naturally, because they are largely interdependent. Much capital of banks and insurance companies has been invested in railroad securities. Railroads in turn are immense purchasers of equipment; and equipment producers in turn are large purchasers of coal, lumber, iron, steel, and machinery. Do we not remember with what vigor the banking and equipment

³ 65th Congress, 1st sess., chap. 53, sec. 6, approved Aug. 10, 1917.

⁴ *Idem*, sec. 3.

⁵ *Idem*, sec. 27.

⁶ *Idem*, sec. 11.

interests would go to the front for higher railroad rates or would present a common hostility to a fight for railroading efficiency; and how when the great banking interests feared the prejudicial effect on their power of the Federal Reserve System (for the existence of which, by the way, they are now profoundly grateful), the insurance and manufacturing interests opposed it or stood aloof?

Here, again, the law of efficiency—the law of justice sharpened into affirmative action—had already begun to work before the outbreak of the war. The provision of the Clayton Act abolishing interlocking directorates was a natural step in the winning of national efficiency, through weakening the most pernicious aspect of the operating alliances between capital groups. But, quite irrespective of interlocking directorates, the alliance itself is a natural one in a system of production through private capital. That alliance stood in full cohesiveness in April, 1917.

America entered the war, and suddenly that alliance was rent asunder. The State in peril had become the great consumer. The ordinary commercial instinct for utmost profits, which was the basis for the solidarity of capital groups as against the consumer, suddenly became as “profiteering” a cause for the mantled cheek, and the members of the brotherhood at many points were left staring at one another with suspicion and hostility born of elemental patriotism. The manufacturer, eager to sell to the Government at a reasonable price, turned upon the producer of raw materials with the charge of “profiteer” and “hoarder.” The raw-material man, denying the charge, complained loudly against the banker for robbery and against the railroad for lack of equipment due to inefficiency; while the manufacturer and raw-material man and the railroads now joined together in the cry against the manufacturer or dealer in foodstuffs, who by profiteering was raising the cost of living and was thus responsible for the irresistible pressure for wage increases, which in turn was forcing up the cost of production.

Into this disorganized capital group now stalked the Government as a buyer of gigantic quantities, of total outputs, and as guardian of the consumer. The commandeering power lay ready in its hand, while through the Federal license it could instantly close the doors over great areas of business, and through its new taxation laws or its other war legislation it held the key to the

contractors' ledger vaults. Armed with these irresistible weapons, it could apply strictly its yardstick for fixing prices and measuring profits. This disintegration of the alliances of big business was much accelerated when the Government took over the American railroad systems, directly and indirectly the greatest and most diverse purchaser in industry. But it was the quick throwing aside of the old, consolidating motives of "business" by the majority of great business executives, in the presence of our national peril which made relatively easy the rapid entrance of Government control. Let it be borne in mind that these motives will cease to operate with the return of peace, and that capital will naturally join hands again for regaining what it can of the ground it has lost.

Perhaps the most conspicuous single development up to this time as affecting the relation between capital and the State has been the Government's plunge into private insurance. Under Article IV of the act relating to war-risk insurance, passed in October, 1917, the Government offers to sell to every enlisted man and officer, whether or not in active field service, and to every member of the female Army and Navy nurse corps, insurance against death and total permanent disability, at the regular premium rates "based upon the American Experience Table of Mortality." In the first nine months of business the Bureau of War Risk Insurance has written policies for over two million applicants in the aggregate amount of over nineteen billion dollars, over one-half in amount of the total combined life and total-disability insurance in force in private companies in America to-day. So far, of course, this involves nothing that capital need view with alarm as to after-war business. But the law goes on to promise that within five years after the termination of the war the insured will be allowed, without medical examination, to convert his term policy into Government insurance in the form of ordinary life, twenty-payment life, endowment, or other usual forms. Here, then, with the return of peace will be the State operating on a gigantic scale the function of life and disability insurance, heretofore considered a free and exclusive field for private enterprise. And the benefits of that activity will be enjoyed not only by civilians throughout the land who served in an active branch of military service without receiving any disability, but also by those who, coming from an inactive branch at the end of

the war, simply exchanged one swivel chair for another. Already movements are on foot to extend the scope of this governmental activity to civilian Government employees. Is it not rather to be expected that the precedent of insurance for all in a group, without medical examination, will result in a public opinion which will demand that life insurance, that greatest refuge from gnawing anxiety, shall be afforded to every man at some price because he needs it, and not because he is healthy and young enough to pass a physical examination? It is true that in any form of State life insurance there must be something to take the place of the personal solicitation which is done by private enterprise; but if the public becomes sufficiently convinced that security for the family from destitution, upon the death of its bread-winner, is a public necessity and a public right, it can readily find means for obtaining the premiums through the technique of taxation.

Capital's Position Weakened by the War.—Briefly appraising, then, the relation between capital and the State, in America, at the end of our first year in the war, we have the paradox that private capital at the time of its greatest public utilization is occupying a relatively weaker position with reference to the State than at any other time in two generations.

LABOR AND THE STATE DURING THE WAR

It has been very different with Labor. Labor's position in the State is distinctly stronger than it was prior to 1917 or, in fact, at any time in American history. In 1916 representatives of organized labor as such had no voice anywhere by official sanction in the fixing of labor standards or in the settling of industrial disputes—a fact which vividly discloses the weakness of trade unionism as a tangible political factor. In 1914 the provision in the Clayton bill which exempted trades unions from the prohibition against combinations to enhance prices was opposed but was incorporated in the law as enacted.

In our first year in the war the principle has become thoroughly established, in the production of war necessities—particularly of war equipment, where the State is in fact or in essence the producer and merges itself with capital—that the workers themselves have the right to assist in the formulation of the con-

ditions under which they shall work and of the wages which they shall receive. And it is particularly significant that the Government itself initiated this first step in the democratization of industry. In other words, where the State, during the war, has become the consumer it has imposed heavy restrictions upon capital; where it has become the producer it has made liberal concessions to labor.

In America the unions, although far weaker in point of numbers than the British unions, have been forced in exchange for these new advantages to concede very little of the ground which they had at the beginning of the war. In the first place, compulsory arbitration of labor disputes has not been adopted, as it was in Great Britain under the Munitions of War Act of July 2, 1915; nor can it be said that such a law seems more probable to-day than it did six months ago. The strike or the threat of a strike, after a year of war, can still be used in the greater part of war industry for the purpose of forcing higher wages, not only without violating law but also without running counter to any express arrangement of honor. In only a limited sphere of production have the national leaders of organized labor expressly agreed not to use the weapon of the strike. But in making even these concessions they have won new and important ground for their future development. Furthermore, wages in the production of war necessities have responded to the mounting cost of living far more readily than in Great Britain.

The Government acted quickly to enlist labor's interests in the war. At the very outset, in April, 1917, Mr. Gompers, president of the American Federation of Labor, as a member of the Advisory Commission of the Council of National Defense, with forthright patriotism and statesmanship, joined in a public proclamation that workers and employers must on both sides refrain from capitalizing the national crisis in production. This manifesto, coupled with other public utterances by Mr. Gompers, urging labor's whole-hearted support of the war, went far to prevent an unrest which might have developed at once out of the sudden changes in the cost of living and out of labor's new strategic position.

Labor's New Part in Adjusting Disputes.—The first appearance of real trouble was promptly made the occasion for an

understanding between the Government and labor, which largely prevented the accumulation of grievances and which became a precedent in the production of war necessities. This was in cantonment construction. In June, 1917, the Government was confronted with the need for the construction in about three months' time of sixteen wooden cantonments, each to accommodate about 40,000 men, together with all necessary commissaries, hospitals, hangars, remount stations, refrigerator plants, power plants, and other service buildings, water supply, and sewage disposal. This building venture, which was by no means all of the War Department's building program, called for about 150,000 workers at the peak load of the work. Local unions at some points insisted immediately upon the recognition by the contractor of the union shop—a serious menace to the entire program. On June 19, 1917, the Secretary of War entered into a brief written memorandum with Mr. Gompers⁷ in which it was agreed that the Government would recognize at each cantonment the union scales of wages and hours prevailing in that locality, that the unions would not oppose the open shop, that no labor dispute should interrupt production, but that such dispute would be submitted to an adjustment board of three, whose decision would be treated as binding and final. The adjustment board of three was to be appointed by the Secretary of War, one to represent the public, one the Army, and one labor, the last to be nominated by Mr. Gompers. Thus, by a very simple act the Government entered into its first agreement with a labor official as such and for the first time recognized a union wage as such.

The adjustment commission so created, of which John R. Alpine, president of the International Association of Plumbers and Steamfitters, was a member, kept the peace throughout the period of cantonment construction and effected a continuity of production despite the occurrence of a number of disputes. This arrangement was followed in August by similar agreements covering the work of longshoremen at the ports and the building of shipyards and of ships in private yards where the Government might have ships under construction. These agreements have in the main served their purposes of preventing serious interrup-

⁷ See "The Adjustment of Labor Disputes Incident to Production for War in the United States": *Quart. Jour. Economics*, vol. 32, p. 122, November, 1917.

tion of work and of developing a constructive policy in wage adjustments.⁸

A judicial tribunal for adjusting wage disputes in the West was appointed in September, 1917, by President Wilson, in which J. H. Walker, president of the Illinois Federation of Labor, and E. P. Marsh, president of the Washington Federation of Labor, balanced two representatives of employers. This body, in a tour of the Western States and of the Pacific coast, brought about some important adjustments and did much to impress upon organized labor the Government's sympathetic interest in the industrial relations incident to war production. On January 8 the Government issued, through the Council of National Defense, a statement of a program for a central labor administration, part of this program to be the establishment of "machinery which will provide for the immediate and equitable adjustment of disputes in accordance with principles to be agreed upon between labor and capital and without stoppage of work. Such machinery would deal with demands concerning wages, hours, shop conditions," etc. As a result of this preliminary step, there was convened in Washington a War Labor Conference Board, composed of five representatives selected by employers and five selected by organized labor, the former group having selected ex-President Taft to act as its counsel, the latter Frank P. Walsh, formerly chairman of the Federal Commission on Industrial Relations. On March 31 this conference board issued a report and recommendations, in which it urged the immediate establishment of a "National War Labor Board of the same number and to be selected in the same manner and by the same agencies as the commission making this recommendation," this board to act by way of mediation and conciliation either by itself or through machinery to be created by it for action in various parts of the country, and to adjust such matters by final determination where mediation and conciliation might prove unsuccessful. This commission is not to take cognizance of a controversy "where there is by agreement or Federal law a means of settlement which has not been invoked." The report then went on to declare as the unanimous statement of this conference that "the right of workers to organize in trade unions and to bargain collectively, through cho-

⁸ See "Labor Problems in the United States During the War": *Quart. Jour. Economics*, vol. 32, p. 333, February, 1918.

sen representatives, is recognized and affirmed. This right shall not be denied, abridged, or interfered with by the employers in any manner whatsoever. . . . Employers should not discharge workers for membership in trade unions, nor for legitimate trade-union activities." Then followed, under the heading "Existing conditions," two important paragraphs, as follows:

"In establishments where the union shop exists the same shall continue and the union standards as to wages, hours of labor, and other conditions of employment shall be maintained."

"In establishments where union and non-union men and women now work together, and the employer meets only with employees or representatives engaged in said establishments, the continuance of such condition shall not be deemed a grievance. This declaration, however, is not intended in any manner to deny the right or discourage the practice of the formation of labor unions, or the joining of the same by the workers in said establishments, as guaranteed in the last paragraph, nor to prevent the War Labor Board from urging, or any umpire from granting, under the machinery herein provided, improvement of their situation in the matter of wages, hours of labor, or other conditions, as shall be found desirable from time to time."⁹

The National War Labor Board, in pursuance of this report, was created in April, 1918, and has already effected important and far-reaching settlements.

Labor's Part in War Administration.—Coincidentally with and largely as a result of the establishment of these adjustment mechanisms it has come to pass that national leaders in organized labor have been sitting with important administrative duties where their viewpoint can have direct influence upon the shaping and creation of labor policies. Thus John Donlin, president of the Building Trades Department of the American Federation of Labor, sits as a voting member of the emergency construction committee of four of the War Industries Board, which selects

⁹ See U. S. Dept. Labor Bureau of Labor Statistics *Monthly Review*, vol. 6, No. 5, pp. 54-58, May, 1918.

contractors for construction work under the War Department; W. S. Carter, president of the Brotherhood of Engineers and Firemen, and Joseph A. Franklin, president of the International Brotherhood of Boilermakers, Iron Ship Builders, and Helpers, are respectively director and assistant director of the division of labor of the Federal Railroad Administration; John P. White resigned from the presidency of the United Mine Workers of America to join the staff of the Federal Fuel Administrator; William N. Doak, vice-president of the Brotherhood of Railway Trainmen, has been on the staff of the Food Administration; while labor representatives are to be found at a score of other points either in official administrative places or on committees which have semi-official standing. These developments could not have been carried forward to success but for the breadth and forceful ability of a small group of union leaders.

Now a word as to how American labor has fared in connection with wages. We have seen that Mr. Gompers, in April, 1917, joined in a declaration of the Council of National Defense that neither side, capital nor labor, was to use the public exigency as a club for improving its position as against the other. It was insisted by employers in the early months of the war that this manifesto must be interpreted to mean that there was to be no pressure from labor for wage increases during the war. But this argument was soon lost sight of under the pressure from employers themselves, when the sudden demand for labor began to be felt. For there has not been, as in England under the Munitions of War Act, any prohibition or check against wage increases in munitions plants. The consequence has been a steady course of competitive bidding among manufacturers for the mobile labor supply, and a resultant steady increase in wages, which in all cases have advanced materially and have in some cases advanced more rapidly than the cost of living. The Government has become fully committed through its war wage commissions to the method of ascertaining statistically the percentage of change in the cost of living since the establishment of the pre-war wage, and of applying that percentage, or index of increase, to the pre-war wage. The Shipbuilding Labor Adjustment Board initiated this index method,¹⁰ and it has been pursued scientifically by the

¹⁰ See *Quart. Jour. Economics*, vol. 32, p. 333, February, 1918.

railroad wage board, appointed by the Director General of Railroads.¹¹

CAPITAL, LABOR, AND THE STATE AFTER THE WAR

What, then, can we say about the future of industrial relations in the United States? This much we know—that new and bold methods have been adopted. Some of these methods, as we have seen, had already been foreshadowed by recent normal developments in American industry and institutions; the principles behind them may take such root in American life during the war as to survive into the new era. Such precedents are the Government control of railroads, heavy supertaxes upon large incomes and excessive profits, governmental regulation of hoarding and speculation in foodstuffs, State control of profits from or operation of munitions plants, and the carrying on by the State of public life insurance. The regulation of business methods, profits, and prices through the Federal license system is not apt to be forgotten as a tool in statecraft. Furthermore, we may expect public opinion to retain its newly sharpened distinction between essential and non-essential industry or commodities, applying that distinction in such matters as taxation, railroad rate classifications, and the adjustment of contributions by employers to workmen's compensation funds.

In most of the war-time developments just noted the Government has curtailed the power and earnings of capital and has materially weakened the position of the capitalist or investing and producing class as against the consumer. On the other hand, the new position won by labor through governmental action, which carries with it the implication of a far-reaching change in the relations between capital and labor, has come without any substantial historical basis in pre-war days. Will it survive the war? Will these precedents for the democratization of industry become the foundation for great changes in the social, industrial order of America?

Conservatism of Organized Labor in America.—There has come recently from Great Britain a public declaration of great signifi-

¹¹ See "Report of Railroad Wage Commission to Director-General of Railroads," May, 1918; particularly pp. 16-28, 79-98.

cance—the Report on Reconstruction, by a subcommittee of the British Labor Party.¹² This document has come out of an intellectual ferment which has run a course of increasing intensity among the communities of Europe during the war. This ferment has found expression in a torrent of idealistic prophecy from able British and Continental writers and has deeply stirred the minds of men everywhere. It has moved probably the ablest exponent of capital in America, Mr. Schwab, of the Bethlehem Steel Company,¹³ to predict publicly that the workers will come to share in the control of all industry. The British declaration calls for the universal minimum wage; for complete state insurance of the workers against unemployment; for the democratic control of industrial methods through participation by the workers in such control “on the basis of common ownership of the means of production,” accompanied by an “equitable sharing of the proceeds among all who participate in any capacity” in production; for state ownership of the Nation’s land; for the immediate nationalization of railways, mines, and electrical power, canals, harbors, roads, and telegraph; for the expropriation of industrial insurance companies; for the continued governmental “control of the shipping, woolen, leather, clothing, boot and shoe, milling, baking, butchering, and other industries; for a system of taxation on incomes or on capital which will pay off the national debt without encroaching directly or indirectly upon a fair minimum standard of living for the mass of laboring folk and upon the struggling households of professional men and small traders.” “In this matter,” says the report, “the Labor Party claims the support of four-fifths of the whole Nation, for the interests of the clerk, the teacher, the doctor, the minister of religion, the average retail shopkeeper and trader, and all the mass of those living on small incomes are identical with those of the artisan.”

These are ideas for which, in the main, the British Labor Party seems to stand. They are the natural offspring of the marriage in Great Britain between socialism and trade unionism. This alliance bears the name of the Labor Party and has ex-

¹² See U. S. Dept. Labor Bureau of Labor Statistics *Monthly Review*, vol. 6, No. 4, pp. 63-83, April, 1918.

¹³ Now Director-General of the United States Shipping Board Emergency Fleet Corporation.

erted an increasingly powerful influence in British politics during the course of the war. When we come to look for the influential public group in America with which labor is strongly allied and which would surely be heard to insist upon such a program or a material part of such a program, we find none. Probably nothing in the history of trade unionism in America distinguishes it from its history in other countries as clearly as its separation from and its hostility to socialism. For reasons too complex to be examined here, the American Federation of Labor has for years rejected every advance made to it by the socialists.

Perhaps no stranger or more vivid revelation of the dislocation of American labor leaders from advanced democratic doctrine could have taken place than that which occurred in Russia in June, 1917. Let us picture to ourselves the meeting of the delegates of the Workmen's and Soldiers' Council of Russia, among whom were then seething the wild dreams of labor's expropriation of capital and control of production which a few months later enabled Lenine and Trotzky to capture Russia. These delegates were assembled in Petrograd to hear the message from American labor, uttered by their brother in the labor movement from free America, James Duncan, first vice-president of the American Federation of Labor and a member of the United States Commission to Russia. How did Mr. Duncan rouse the spirit of comradeship in ideals of all those who toil? Mr. Duncan recommended (1) speedy legislation for public compulsory education, (2) the eight-hour workday, (3) the right of labor to strike, and (4) unionization of Russian labor.¹⁴ This represents Mr. Duncan's farthest flight into democracy in such an atmosphere; nor has the thought of the dominating party in the Federation of Labor or in the railroad brotherhoods been winging farther than this. Most of American organized labor's official thinking up to the present time, so far as concerns industrial problems, would seem to the majority of British labor men to-day as a message from the distant past. In November, 1917, at the annual convention of the Federation of Labor, it was considered a distinctly progressive step when the Federation endorsed (to be limited for the present to purchasing) the Rochdale coöperative system,

¹⁴ Report of Proceedings, Thirty-seventh Annual Convention, American Federation of Labor, 1917, pp. 335-338.

which, since 1840, has managed to deprive the middleman in England of untold millions in profits and has been of incalculable assistance to the British wage earner. Yet in 1868, half a century ago, the National Labor Union, a predecessor of the American Federation (public education and the eight-hour day being then long-established demands of labor), was following up a series of favorable references to coöperation by organized labor, extending over a period of thirty years, by calling in its platform for the establishment of coöperative stores and work shops.¹⁵

In other words, in America organized labor has kept itself in the main aloof from the consumers in their political efforts. Within the sphere of labor's own immediate concerns it has won its successes while accepting the fact and principles of our established industrial system; and up to June, 1918, it had fastened upon no new constructive idea for labor during the fifty years of industrial concentration.

This settled conservatism in the dominant group of the American Federation and its failure to champion common labor actively have stimulated, by reaction, the development of numerous "secessionist" and rival organizations, and also the recent extensions in the ranks of the Industrial Workers of the World. These are more radical groups, which, without having themselves at the moment much tangible status, greatly impair to-day the solidarity and strength of organized labor in the United States.

But a sudden expression of constructive ideas has just come from the American Federation, which may possibly foreshadow a new influence for it in American life. In June, 1918, at its annual convention, it adopted the report of its Executive Council in which three important propositions are set forth.¹⁶ The first embodies a new championship of common labor, declaring, "We have maintained that there are no workers wholly unskilled, and the distinction between wage earners is one of degree only. The so-called unskilled or common laborers are the backbone of industry. Low economic standards cannot prevail among these workers without injury to all. We maintain, therefore, increased efforts must be made to organize these and all workers in order

¹⁵ "Documentary History of American Industrial Society," edited by John R. Commons and others, vol. 9, p. 219.

¹⁶ See Report of the Executive Council of the American Federation of Labor to the Thirty-eighth Annual Convention, St. Paul, June 10, 1918, pp. 69-71.

that there may be established machinery for self-betterment and that the workers may take their rightful place in determining questions of life and work." The second proposition was that "Every worker has a right to be freed from all avoidable uncertainties of employment—both from those arising through poor labor administration and from mismanagement in production, and the effects of speculation in raw materials or finished products." The third was expressed as follows: "The Executive Council believes that in all large permanent shops a regular arrangement should be provided whereby, first, a committee of the workers would regularly meet with the shop management to confer over matters of production, and whereby, second, such committee should carry, beyond the foreman and the superintendent, to the general manager or to the president, any important grievance which the workers may have with reference to wages, hours, or conditions. It is fundamental for efficiency in production that the essentials of team work be understood and followed by all. There must be opportunity for intercourse and exchange of viewpoints between workers and managers. It is this machinery for solving industrial problems that is fundamental."

The Executive Council's declaration on common labor, if followed up, may strengthen the Federation considerably; and it is of peculiar interest also because it implies an eventual activity by organized labor in the up-grading of its workers. In the two latter constructive ideas for industry—its stabilization and its democratization—lie great possibilities for the future both in national productiveness and in social harmonization; and they are ideas applicable to present conditions because they have already been partly accepted by public opinion. The shop committee is to be found here and there throughout American industry and has been repeatedly promoted by the Shipbuilding Labor Adjustment Board.¹⁷ It has also been recommended and promoted by the British Ministry of Labor and the Ministry of Reconstruction.¹⁸ The question of the stabilization of industry has been definitely approached by the American industrial engineer, who

¹⁷ See U. S. Dept. Labor, Bureau of Labor Statistics, *Monthly Review*, March, 1918, p. 67; May, 1918, p. 127.

¹⁸ See particularly Industrial Report, No. 1 ("Whitley report"), published by the Ministry of Labor, December, 1917; and "Supplementary Report on Works Committees," published by Ministry of Reconstruction, March, 1918.

is testing our methods for maximum returns from plant investment.

If the American Federation should follow up these two ideas effectively, it might possibly come to exercise a stronger influence on after-war developments than if it were to champion a more radical and diverse program. But this is certainly true: that if the leaders in organized labor lead no more constructively than they have in the past, their influence in effecting changes in industrial relations after the war will be relatively small. In such event, any material democratization of industry in America will be due either to the force of European precedent along trails which may be blazed there, or to American statesmanship outside of the labor group, or to both.

Will the new standards of economic justice in the interest of the consumer and of the worker which have been established during the war be carried further under the motives of peace time, or will they be partly or wholly lost through the reassertion of the old pressures from capital? That question brings us to ask what will be the State's motives with the restoration of peace.

National Productiveness and the War Debt.—Leaving aside all consideration of the effects of such international economic rivalry as may follow the war, we know this—that one of the first definite purposes of the State will be to pay its war debt. The strength of that purpose will depend upon the final size of the debt, which even now presents an acute problem in taxation. The State will be forced to levy large taxes on incomes and on excess profits, but in what proportion? On what classes? And to what extent will the State permit capital to shift the burden through low wages in production and through high prices in distribution? Here, again, trails of invention are apt to be blazed in Europe by more pressing necessity than ours, although we may never be forced to follow them far, if at all. In Germany, where the national debt already exceeds one-half of the total aggregate wealth, the imposition of a tax not only upon incomes but upon capital itself is being freely predicted. In Great Britain the total war debt of over £6,300,000,000 (roughly 31 billion dollars) constitutes more than a third of the total private wealth.¹⁹ On January, 29, 1918,

¹⁹ F. W. Pethick Lawrence, "A Levy on Capital After the War": *Contemporary Review*, March, 1918, p. 308.

in the House of Commons, Mr. Bonar Law remarked that a levy on capital might probably prove to be "the least objectionable method of liquidating the debt," while Mr. Asquith admitted that he did not desire to rule out in some contingencies a tax on capital, though the difficulties in it were to his mind insurmountable.

This is enough to show us that after the war capital will be sharply upon the defensive. Shifts of citizenship and of domiciled capital from domestic to foreign investment to escape national burdens will be apt to develop and to require preventive legislation. The middle economic class in America, which has been consolidating as the consumer, will doubtless be strong enough to fight powerfully for the imposition of a graduated tax system which would throw the principal burden of the war debt upon the great private fortunes and business institutions. But at this time a levy on capital, or, in other words, partial "confiscation" of capital, after the war seems as a possibility decidedly remote for America, mainly because the present relation between our war debt and our aggregate private income does not yet suggest the necessity of resorting to such extreme financial relief.

But the accumulated wealth of a nation is relatively unimportant in the long run in determining its ability fully to overcome an oppressive debt. The real economic basis of a nation's industrial strength is its power to produce; and human toil is the living element of that power. The character of that toil to-day determines the nation's wealth to-morrow. Will not this old truth under after-war conditions become a dynamic motive? Can any nation of to-morrow, struggling under debts of undreamed magnitude, allow the chronic occurrence of the huge losses in productivity represented by physical debility and shortened lives of workers due to overstrain or under nourishment, by enforced idleness, or by indifferent or hostile workmanship? Because national solvency may depend upon productivity, is it not rather a safe assumption that in the America of to-morrow, under the motive of economic self-defense, the State will be interested in seeing established in industry such new labor standards as will bring the best results in quality and quantity of output per unit of cost?

Democratization of Industrial Management and the New Responsibilities of Labor.—It would indeed be a peculiar social phe-

nomenon if, in America, the greatest constructive reforms for labor were won from capital without serious contest. Yet even that is not impossible. Impelled again in peace by the motive of national productivity, the State may follow along the path already cut and trodden in war. Its tendency will be to impose upon capital such a share for labor in the fixing of pay and of working conditions as will insure the most effective co-operation from organized labor in obtaining volume and quality of output. And it is by no means a foregone conclusion that capital will strongly resist such changes. What with immense taxes on incomes and profits, on the one hand, and what is apt to be an increasingly rigid price-fixing policy, on the other, capital will be forced by the State to cultivate its field intensively. It will concern itself as never before with every available opportunity for savings, and it will be apt to make concessions more readily to effect them.

But capital, backed by the State, will demand from labor, in return, a new concern for its own productivity and a true legal responsibility of organized labor for its acts. Under the craft guild system of mediæval England the wardens and searchers of the guild had the right and duty to inspect all members' work and to destroy it if found defective in quality. The natural tendency of collective bargaining to foster mediocrity was thus well checked. The group bargaining of unionism to-day, although confronted with a totally different set of conditions, will never be upon an entirely sound basis until it can deliver with certainty fair work for fair pay. But if union representatives are given the right to assist in regulating pay and shop conditions, will they not be forced to a new realization of the necessity for union-made productivity? And would this not be still more certain to be the case if this form of shop control should come to co-exist with profit sharing? To-day profit sharing is feared by unionism. But it has been a profit sharing which has been unaccompanied by coöperative shop control and which has thus not only tended to reduce the formal wage but has also tended to weaken the unions' cohesiveness. But union activity in shop control would supply the cohesiveness, and profit sharing would stimulate the effectiveness of that control.

Beyond this thought about labor's share in the management and profits of industry there lies the idea of coöperation—an idea

which, although it cannot be discussed in this brief space, cannot be ignored. That idea in various forms has gained vast headway in the world. As applied to retail purchasing of foodstuffs in England, it has led backward gradually from one process to another until to-day the obscure British housewife finds herself part owner of British flour mills, of golden wheat fields in Saskatchewan, and of tea plantations in Ceylon.²⁰ As invoked by the small farmer in the raising, standardizing, and collective marketing of his products, coöperation has, under Government promotion, immeasurably benefited Denmark, Belgium, and Holland, is fast making over rural Ireland, and has found various footholds in America. But in the mechanical processes of industry coöperation seems still to have a long road to travel, not only on account of the great political and commercial obstacles which it will encounter, but also because it would have to be based upon the conception that each man is deeply concerned not only with his own effectiveness but with the integrity of the workmanship of every other man in his shop.

INDUSTRIAL STABILIZATION

Again, the economic waste involved in industrial unemployment will, from motives of productivity, receive a new attention from the State. The newly augmented Federal labor exchange system will probably lead us to discover causes of the disease of unemployment and to seek ways to prevent it. Unemployment means not only idle men; it means idle capital and sleeping machinery. It means partially paralyzed productivity—one of the old luxuries incident to pre-war democracy which the Nation of to-morrow will not be able to afford. Will not the State undertake to prevent it where it is preventable? For instance, will railroads be allowed to ignore the regularly recurring necessities for repairs to roadbed and equipment and to "lay off" their labor in order to maintain in a time of diminished business a fictitious showing of profits and a regular dividend rate? Will the doors of shoe and textile manufacturers be shut for weeks at a time because great speculators in leather, wool, and cotton are

²⁰ See Emerson P. Harris, "Coöperation," New York, Macmillan Co., 1918, pp. 223-224. Also, Annual Report of Coöperative Wholesale Societies, Ltd. (Manchester, 1918).

disturbing price conditions and disabling the manufacturers from purchasing raw materials; or because manufacturers themselves prefer to delay production in order to effect a quick turnover of their capital invested in materials and labor? Will not the State's interest in continuous productivity here come to outweigh the private interests of the comparatively few? Will not private speculation necessarily give way in the end before public compulsory standardization? In Great Britain, where more intensive industrialization has generally brought about an earlier diagnosis than ours of labor problems, writers in the Labor Party upon "reconstruction" problems after the war have called strongly for the "decasualization" of industry. In America, organized labor has continued up to the present time to accept the "laying off" of men by the employer practically at will as an inevitable incident of industry. Yet the wage question is inextricably bound up with the question of continuity in production.

The wage is the mark of the class in industry which has no regular status. Industrial tradition has it that the individual worker has no contract with his employer and has hanging over him continuously the specter of discharge at the employer's convenience; that no matter how satisfactory his work may be, the worker may at any moment without the slightest responsibility upon the part of the employer be exposed to the risks and ravages of idleness. This insecurity of labor—in law, in tradition, and in practice—is the outstanding fact in the labor problem; more than any other fact it places labor in natural hostility to capital and to the rest of the industrial and civic world which is aligned with capital; it is the great subconscious element in the labor problem.

Yet the employer has not chosen the institution of the wage nor of the contingent employment of labor. Age-old tradition brought it to him, and he has used it in his competition according to the rules of the game—the rule that the man who produces most cheaply wins. Even in his resistance to wage increases the fear of his competitors who may be able to underbid him has generally been his chief motive. The bitterest struggles of labor in America are not to be laid to class antagonism but to unregulated industrial competition. The stabilization of employment and pay would not be strongly opposed by the employer if he could be shown that it will not hurt him more than the other

fellow. Suppose for a moment that the Government were by statute to define a list of industries capable of regularization, were to regulate speculation in raw materials used by them, were to lay special taxes for idle days in establishments within such industries, or were to require that, except by special ruling, employment of labor in such industries shall, after a certain time, begin to be upon a yearly basis. The final result of such a policy would be a decided increase in the productivity of the capital invested in these industries; a great improvement in the relation between employer and employee; and a scientific standardization of production based upon reckonable demand and supply over long periods of time, beyond what the public would have thought of as conceivable. And on the whole the manufacturing class would find it in the end a blessing. Many kinds of industry and a certain proportion of every occupation would always remain upon a casual or a seasonal basis; but even in these the conditions of production would be improved by the stabilization attained elsewhere, and labor would receive higher pay on account of the greater element of risk. At the same time, labor exchanges operated by the State or by labor unions could effect transitions with minimum losses through idleness.

Has America a New Opportunity?—Of course such changes are not to be wrought overnight; in whatever form they might come, they would require a long period of public education and of preparation. But has it been reserved for America to lead the way? Have we, in the stabilization of production, the opportunity to begin the solution of the wage question through beginning the elimination of the wage? It must be said that there are some indications which point in that direction. The economic self-sufficiency of America in supplying and in thus being able politically to control the methods of supplying most of the raw materials which it uses in production; the high course of wages in America as compared with other countries and the relatively high standard of living of the American workman; the slow rate of immigration into America which may be expected during the decade immediately following the war; the rationalization of the wage by the State, which, having already begun upon the basis of variations in the cost of living, must necessarily be carried

further into a consideration of the constancy of employment—all these peculiarly American facts point in this direction.

But perhaps the most important fact is this: In America the young man who works with his hands has never felt that he belongs unescapably in the wage class. By the scores of thousands he is to-day the foreman, the shipping clerk, the superintendent, the general manager, or the president. Industrial caste has threatened us but is still far off. The German system of industrial law has been built up in every way to preserve the wage workers as a class. The wage worker carries his wage disputes to State industrial courts for wage earners, on which an elected representative of labor sits as an associate judge; to special State courts also, in which he escapes the heavy costs of litigation of the ordinary courts, the wage worker fights out his commercial controversies. During employment the State affords him continuous free vocational education; during unemployment the great workingmen's clubs in which are lodged the employment exchanges are freely open to him, with all social conveniences, as are also the workingmen's hospitals; while throughout his working life he has, in the larger part of industry, State insurance against sickness, casualty, and the debility of old age. Briefly, the motive behind the so-called State socialism of Germany has been largely the crystallization of labor as a contented wage class. Great Britain, although in advance of America in such matters, as for instance in unemployment insurance, had up to the time of the war hardly begun to handle on deeply constructive lines the problems of industrial relations; and the dawning thought there of the democratization and decasualization of industry must struggle against the weight of eight centuries of British individualism and social caste. Has America perhaps lying before her, in the problems of irregularity in production, the opportunity of again establishing a new idea for civilization?

In the duration of the war and in the character of the peace lie many answers to the questions we have been considering here.

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X

CONCENTRATION AND CONTROL IN INDUSTRY AND TRADE

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Historical Survey.—Before the outbreak of the war in Europe in 1914 the policy of the United States with regard to concentration and control in industry and trade had been developed on the principle that competition was beneficial and that private monopoly was harmful to the general welfare. After a period of political discussion of several years this policy was first embodied in Federal legislation in the Sherman Act of 1890.

The meaning of the Sherman law was obscured by a haze of litigation and was only slowly developed by judicial decisions. The delay thus secured was utilized to bring about a great increase in the number of monopolistic combinations, especially between the years 1898 and 1902. As a result, popular, and therefore political, interest in this question became very active and led to further governmental investigation and to further efforts by the Department of Justice to animate the Sherman Act. The Industrial Commission, a temporary body for general economic inquiry, paid special attention to these combinations, while in 1903 a permanent investigating organ was established, called the Bureau of Corporations.

Monopolistic efforts had proceeded along two main lines—first, combinations by temporary agreement between formally inde-

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²In signing this paper the fullest acknowledgment is made to Dr. Francis Walker, chief economist of the Federal Trade Commission, the result of whose generous and patient collaboration permeates the whole.

178 AMERICAN PROBLEMS OF RECONSTRUCTION

pendent and competing companies, and, second, consolidations of competitors through corporate organizations which aimed at a more or less complete unification of ownership through holding companies or mergers. The earlier course of judicial decisions as well as the greater speculative gains of corporate combinations resulted in so pronounced a development of the latter form of monopolistic combination that it came to be regarded as typically American. But combinations by agreement were, nevertheless, widespread, though generally not publicly avowed, as they had been very explicitly declared unlawful.

As a device for employing great surpluses arising from combination and consolidation, such funds began to be invested in all sorts of remotely related or entirely unrelated industries. The result of this conglomeration of industries is to project into a field, perhaps uninvaded by either combination or consolidation, a competitor backed by credit and selling resources far in excess of what might be indicated for such an enterprise. Thus a by-product of unfair competition was produced, and the malignant fibers of monopoly tended to spread through the commercial tissues. These conglomerations are not in the nature of the integration of related units but are the collection through ownership of heterogeneous units. This, as stated, was at first largely practiced as a means of employment for large corporate or individual surpluses. Later the advantage of sheer money prestige enabled not a few of these casual ventures to develop into combinations or consolidations of the first class. Many of these are practically unknown and unidentified.

Legal Aspects of Consolidation.—The more active judicial prosecution of combinations by agreement, which developed shortly after the beginning of this century, resulted in the abandonment of many of these combinations by temporary agreement, though in many cases, of course, it led simply to clandestine formation and operation. The corporate consolidations could not hide themselves and were therefore compelled to fight for their existence in the courts. A series of decisions running from 1904 to 1911, culminating in the Standard Oil and American Tobacco decisions, established the principle that such forms of combination were well within the prohibitions of the Sherman law and tended to discourage further developments in that direction.

Two of these great corporate combinations, namely, the United States Steel Corporation and the International Harvester Company, were not proceeded against until after the Oil and Tobacco cases were decided. They were regarded in some quarters as less obnoxious, especially for the reason that they claimed to be "good trusts"—that is, combinations that did not seek to destroy their competitors. Both of these companies pleaded that to dissolve them would injure the export trade of the country. The final decision of these cases was deferred, because, it is generally assumed, of the abnormal situation resulting from the outbreak of the war in 1914.

Up to this point the whole trend of judicial decision was toward a broader and broader application of the prohibitions of the Sherman Act. The principal unsettled question remaining appears to be whether a monopolistic combination with the power to crush its competitors is not against public policy and contrary to the law, even though it were not shown to have exerted that power; whether a corporate combination that could dictate prices is not unlawful, even if its prices had been moderate, in the same way that a price combination of formally independent competitors is unlawful, even if the prices agreed on were low.

The Economic Question.—Back of this publicly disputed legal question was a disputed economic question, and it may be said that this was the crux of the matter. Apart from wide circles of more or less interested persons, there are apparently many quite disinterested ones who believe that these great combinations are elements of national strength and beneficial to the general public by reason of greater efficiency. Large business corporations resulting from natural growth due to efficiency are not here in question, but only the great combinations of competitors to restrict competition. This distinction, even when made, is generally lost sight of. Efficiency may be taken in various senses, but the most general idea of what constitutes efficiency is a low cost of production or of distribution.

Much has been said on this subject, but comparatively little can be pointed to in the way of definite published statistical evidence drawn from books of account. It is interesting to note that the Bureau of Corporations proposed in 1913 to investigate this question, but it is a very large and complex one, and the

Bureau never had sufficient funds to go beyond certain preliminary studies. In various industries, from time to time, reliable data have been made public, but they are too meager to answer the question positively one way or the other. Indeed, from all that is publicly known on this matter it appears probable that the facts would show quite variable conditions in this respect. In other words, the factors of economy that may be introduced by large combinations are not decisive factors.

In this connection it is worth observing that one should make sure that cause and effect are not confused. The large business organization may be large because it was efficient, rather than efficient because it was large. Again, a large combination may have low costs, and yet this may be essentially due to the efficiency of certain important original component elements of the combination. The report of the Bureau of Corporations on the International Harvester Company, for example, states that the low production costs of that company were not found in all its plants. Some of these had comparatively high costs, but this was offset by certain very important plants which were preëminent for their efficiency before the combination was made.

It is especially important to bear in mind, as already stated, that large industrial enterprises and monopolistic combinations are not the same thing. But for any kind of large enterprise it is also quite possible, and indeed quite probable, that beyond a certain size of plant and degree of integration of processes there is no gain which is not offset by losses due to greater unwieldiness.

The Theory of Anti-trust Legislation.—The policy of the Sherman law, however, was not founded on any economic theory concerning efficiency, but rather on an economic theory as to distributive justice and on a political theory as to the best kind of government.

The economic principle was that unchecked monopoly power in trade and industry strongly and almost inevitably tends to excessive accumulation of wealth among the few and to exorbitant prices and a high cost of living for the many—in other words, an abnormal contrast of rich and poor as distinguished from a more general and equitable distribution of wealth. The political principle involved was that political power goes very largely

with economic power, and that it is vain to strive for a really democratic form of government in a state where the bulk of the wealth is in the hands of the few.

To each of these points there is of course an answer to be considered. First, a monopoly may be tolerated, but regulated by state control. Second, a monopoly may be "popularly" owned. In each case the "limit" of the idea, as the mathematicians say, is state ownership of industry or collective socialism. Between the unconfined monopoly and this "limit" various stages of regulation or of popular ownership would be possible.

It is true that some of our largest corporate combinations are popularly owned to-day in the restricted sense that they have a very large number of shareholders, but the actual control is rarely, if ever, of a popular character. It rests really in the hands of a few. While popular management of business corporations may well be thought utopian, popular control of the management is not. Unfortunately in this country, at least, the ordinary shareholder has little chance to have his views even listened to. At a shareholders' meeting of a great express company a few years ago, according to published reports, some of these shareholders or owners of the company desired to know what was the surplus of their company, a fact long kept secret by the directors. A spokesman of the directors, an eminent New York lawyer, had the colossal impudence to tell them that information on such matters was properly reserved to the directors, who moved in a "higher sphere" into which they should not presume to intrude.

A comprehensive regulation of corporations, which probably could be effectively accomplished only by Federal legislation, has long been advocated by disinterested and intelligent people as necessary to bring our corporation law on a footing equal to that of England. While not directly a "trust question," it is one that is intimately bound up with the trust problem, and also with the problem of democratic industry.

Recent Legislation.—Just after the outbreak of the war, but virtually decided upon before it, two new laws affecting this question were passed by Congress—the Federal Trade Commission Act, on September 24, 1914, and the Clayton Act, on October 15, 1914.

182 AMERICAN PROBLEMS OF RECONSTRUCTION

The chief innovation in the Trade Commission Act was the sweeping prohibition of all unfair methods of competition in commerce, with provisions regarding administrative procedure devised to obtain prompt enforcement. The principal purpose of this law was to check those various abusive competitive practices that the ingenuity of many trusts had invented or adopted as weapons by which competitors had been suppressed or monopolistic power achieved, and to prevent the development of new unfair practices.

The Clayton Act made certain specific provisions of a similar character and especially prohibited the formation of combinations through the devices of interlocking directorates and holding companies.

To conclude as to the position of the United States just before the war, it may be said that the legal aspect of the main trust question seemed to be on the verge of settlement along the lines of recent historic development. There would then have remained only the residue in the form of conglomerations under unified financial control and as fully subject to legal discipline as any interstate competitor. This for the reason that just at the outbreak of the war a further definite step had been taken in advance with respect to abusive trade practices, which are frequently the means of building up monopoly.

Foreign Trust Policies.—In foreign countries a considerable variety as to trust policy existed before the war, and, generally speaking, three main groups may be distinguished, as follows: (1) combinations recognized as legal and with combination agreements, therefore, enforceable at law; (2) combination agreements invalid and unenforceable at law, but not criminal; and (3) combinations prohibited by the criminal law.

It is perhaps significant that of the third class, which is that to which the United States belongs, the most conspicuous examples were France and the great English self-governing colonies such as Canada and Australia. On the other hand, the most conspicuous example of the first class was Germany. Austria belonged to the second class. It is not easy to place England, because there one must look to cases and not to statutes to find the law, but it may be said to have been somewhere between the first and second classes, now on one side and again on the other.

Before the war combinations existed to a greater or less degree in all foreign countries of advanced industrial development. These existed abroad, as here, in countries of the third group for the reason that criminal laws, of course, have never succeeded in completely preventing the acts prohibited, though they are a powerful deterrent to many who would otherwise be disposed to do the things prohibited.

In European countries, especially on the Continent, the form of combination was generally an agreement between competitors for a limited period of time, such agreements generally being known as cartels. The combination by consolidation of interests was rare, although there were some large consolidations of competitors, as, for example, in the German electrical industry.

The German Cartel and Its Objects.—The Germans apparently borrowed the cartel directly from the French, but they developed it on a much larger scale. It was an institution peculiarly suited to their ideas and aims. Germany, as is now generally recognized, is a country with intense nationalistic ambitions, organized on an imperialistic plan and striving for domination in world commerce as in other things. The main purpose of industrial imperialism was to build up the national exports, the domestic consumer being as little regarded as is the foot soldier of an army of political aggression.

The cartel system made it possible to promote exports by means of low prices because the cartel could at the same time recoup the resulting losses through high prices in the domestic market. This in connection with its tariff made possible Germany's drives in international competition through heavy burdens laid on the German population. The National Liberals—the Junkers of industry—were for it, but the old-fashioned Liberals were against it. In other words, the cartel system in Germany was closely linked up with German imperialism and was, indeed, an important factor in it. It is a fairly safe generalization that, wherever the lust for national expansion is strong, there will be found powerful influences in favor of combinations of a national scope with the special object of seizing the export trade from competitors of other nations.

The most pronounced example of this sort of combination in Germany, as well as the one which most clearly evidences the

underlying policy of the German Government, was the potash combination. The old potash cartel, in which some Prussian government and other state-owned mines were members, broke down in 1910, but the German Government came to the rescue by taking the unusual step of passing a law which made it practicable to revive it. At the same time the law regulated the fundamental conditions of the industry.

Potash being practically a German monopoly, the usual price policy of the cartel system was reversed. In this instance it was possible, through combination, to sell in the export trade at high prices. The law provided, therefore, high prices for potash sold in the export trade and low prices for potash sold in Germany.

As the potash sold in the domestic trade went chiefly to the Junkers or large land owners, who were the bulwark of German imperialism, this seemed a very successful stroke of policy. It is a question, however, whether the potash industry did not suffer more than it gained, and it was certainly greatly demoralized by the overdevelopment of potash mines and a great increase in costs of production, due to limitations on output. Furthermore, this extremely selfish policy of "national" extortion will apparently have the effect of forcing other nations to develop different sources of potash supply, and Germany will then have killed the goose that laid the golden egg. It probably will prove, therefore, to be merely another illustration of the ultimate inefficiency of ruthlessness.

Changes Resulting from the War.—Very soon after the outbreak of the war in 1914 the industries of the European belligerents experienced radical changes. Most of these changes, however, were due to the necessities of war and not intended to continue after peace was concluded. The main movement was toward greater state regulation of industry, which in many cases was soon transformed into state operation and even state ownership.

Thus in England, where the railways were privately owned, a system of state operation and financial responsibility was immediately put into effect. Later the whole shipping industry was taken over. In the coal industry of England, after considerable experimenting with increasingly drastic state control, arrangements were made to take the mines over for operation by the

Government. Where less radical measures have been adopted the methods of state regulation have often been partly accomplished through and with the aid of government-fostered combinations among the industrial concerns affected.

The experience of England in these matters has probably not been more extreme than that of the other chief European belligerents. The state has on all sides reached into what was hitherto private industry, and, where it has not done that, it has sometimes encouraged or even compelled the organization of combinations among private producers. Thus in Germany the great Steel Syndicate was apparently on the verge of dissolution, but it is understood that shortly after the outbreak of war the German Government commanded the steelmakers to get together, with the intimation that otherwise their plants would be taken over by the state.

The experiences of the belligerents with regard to acts contemplated purely as war measures do not require extended consideration here, because they are not generally indicative of future policy. It is quite possible and in some lines of industry even probable that the pre-war conditions will never be restored. The railways in England may never be given up by the Government. Indeed, there was a strong movement in the direction of Government ownership before the war.

It is easy, however, to exaggerate this socialistic trend, because the nationalization of numerous industries or the compulsory organization of private combinations is not very significant compared with the commandeering of food supplies, raw materials, and facilities of production, the compulsory subscription to war loans, the issue of irredeemable paper money, and the compulsory service of individuals in the army and in industry. If economic and political conditions permit there is no doubt that most of these war measures will disappear or be essentially modified after the war.

The first years of the war, while the United States was still neutral, produced important if not profound changes in the industries of this country also, and some changes apparently in popular sentiment and public policy. The great increase in export trade to supply the wants of belligerents and of neutrals formerly supplied by them tended to disturb the established system in various ways. Orders were on such a large scale that indi-

vidual concerns could not always meet them individually, while buying for the belligerents was gradually centralized in a few hands.

There was apparently a general disturbance in the industrial morale—a feeling that the old order was perishing and that a new order was coming—among some perhaps a real moral disintegration due to the psychological shock of the war and the mental excitement from highly speculative gains. Things that would have aroused opposition and suspicion in former days seemed too petty to attract much attention from a people who were either spiritually absorbed in the course of the war or materially absorbed in making large profits out of it. Various manifestations of these conditions were evident both when the United States was still neutral and later.

Export Combinations.—In the Federal Trade Commission Act a provision had been inserted directing that an investigation should be made into conditions in foreign countries, particularly with respect to combinations, and to report thereon, with recommendations, to Congress.

Shortly before this Commission was organized, and just when the possibilities of a great development in our export trade, on account of the war, were becoming evident, a strong movement appeared in favor of a relaxation of the restrictions of the Sherman law with regard to combinations for the export trade. Sometimes it was insisted that a clarification only was necessary, and that such combinations were not unlawful.

The Federal Trade Commission made an investigation of the more readily accessible facts and ascertained various classes of opinion. This legislation was urged especially as beneficial to the smaller exporters. The most active proponents of this movement, however, appear to have been large financial interests. The great exporting corporations, some of which were large combinations, claimed that they did not need to combine with any one else. This was also generally true of concerns which had built up an export trade in goods sold under trade names or brands. Business men generally favored it. Professional men, lawyers, publicists, and even economists also appeared to be in favor of it by substantial majorities. There was no extensive or energetic opposition. The Federal Trade Commission reported in

favor of the general proposition in the spring of 1916, but Congress did not pass the bill permitting such combination (the Webb bill) until two years later.

In reporting favorably on this proposition the Federal Trade Commission recognized that there are various other factors of more fundamental importance to the development of export trade than the right to form combinations. This needs of course no argument in the light of the actual courses of the world's commerce and the laws affecting this matter. Cost of production and quality of goods, transportation facilities, banking facilities, and last, but not least, a knowledge of the business and of the people with whom one is doing business are really the chief things. Above all, a comparatively low cost of production is essential. The bulk of international commerce is in staple goods and goes on this basis alone. It is here that the theory of high prices at home and low prices abroad functions contrary to its purpose by raising the cost of living, the wage scale, and, consequently, the costs of production.

If a country produces the goods cheaply, but the people are too ignorant or lazy to sell them, plenty of traders will come and get them, because it pays. Before the Standard Oil Company was organized American kerosene oil was exported in a larger proportion of the total product than ever since, and it went to practically every inhabited country and island of the world. This is shown by the official commercial statistics.

Cost Finding and Price Fixing.—In 1915 prices in the United States had not shown any marked rise over the years preceding it, but in 1916 they began to advance so markedly in certain lines that governmental investigation was initiated. The first conspicuous instance was newsprint paper. According to the findings of the Federal Trade Commission the increase on this item was due partly to general trade causes and partly to the deliberate efforts of an important association of print-paper manufacturers. The Commission was averse to leaving the realm of costs and conduct for consideration of the question of prices, but, at the request of the business interests affected, the then members of the Commission attempted to arbitrate this question as individuals and by agreement of parties.

In the winter of 1916-17 an excessive rise in prices developed

in the anthracite coal trade, owing to various conditions, but particularly to profiteering among jobbers and dealers and a panic among the consumers. By investigation and moral suasion the Federal Trade Commission succeeded in bringing some relief. Also in the winter of 1916-17 an unprecedented advance occurred in the prices of pig iron and various steel products, and "fifty-dollar pig iron" was predicted in the trade journals. The high price of pig iron and steel products was due simply to enormous war orders, but its seriousness was not generally appreciated by those unfamiliar with the nature and importance of this industry. These occurrences, however, were merely a prelude to the price crisis that was to develop immediately after this country went into the war.

To those who were in touch with the industrial situation it became evident, after war was declared, that energetic action by the Government would be necessary with regard to prices. In the first place, the Government in spending the billions necessary for munitions and war supplies could not afford to pay more than a liberal price based on the necessary costs, while, secondly, the enormous purchases of the Government, by depleting the available supplies, would inevitably cause the prices to ordinary consumers to rise to impossible levels, unless some control were exercised.

It is true that a few of those in responsible positions in the Government service held the opinion that war supplies should be obtained by public bidding. The more enlightened officials and business men of the country, especially some of those who were associated with the Council of National Defense, recognized the futility of such a policy and began to plan for governmental price fixing for war supplies purchased by the Government in an effort to check the erection of a dangerous price structure and the consequent inflation of prices and demoralization of wage and living standards. In spite of all that has been done, the results feared seem to be drawing nearer.³

The President, as early as May, 1917, took steps to have the costs of some of the fundamental materials determined by the Federal Trade Commission and soon afterward laid down the general principle that prices to the Government should also apply to the public in general. While certain laws were on the statute

³ July, 1918.

books, even before the war began (and were extended afterward), which gave the Government the power to commandeer goods, factories, etc., on paying a fair price, the Government, with regard to most of the more important industries, proceeded on the principle of establishing maximum prices through agreements between the representatives of the several industries and the War Industries Board. The Government found a reasonable desire, on the part of the industries so dealt with, to accommodate themselves to the necessities of the case, although there were naturally frequent differences of opinion.

The question of coal prices was perhaps the most critical of all, but it was deemed wiser not to attempt to settle it by voluntary agreement. Congress passed a law giving the President the power to fix prices, and this was begun in August, 1917. It would be impossible here, even if it were appropriate, to enter into a detailed discussion of the prices thus fixed. Suffice it to say that at all times the limiting factor in coal production was the supply of coal cars at the mines, and that the production curve started up the day that prices were fixed.

In this period the Federal Trade Commission has had the function of determining the costs, but other bodies, such as the War Industries Board or the Fuel Administration, have had the responsibility of fixing prices. The alternative was Government operation, and for most industries this was deemed impracticable, or, in any event, a last resort.

This observation does not apply, however, to transportation, which is and has long been recognized as at least a semi-public function. At the end of the year 1917 all the railroads of the country were taken over by the Government for public operation. The problem of the even more critical war agency of ocean transportation was solved in a similar way by the Government taking over all available shipping. In both instances technical motives such as economizing carrying capacity and using it first for essential needs were predominant, but the question of rates of transportation and of insurance were also of great importance.

The Government has also gone extensively into the establishment of industrial enterprises on its own account and has organized a corporation to facilitate the financing of these and related private operations. These undertakings compete more or less

directly with private enterprises engaged in making munitions and supplies for the Government.

Control of Industry.—The general control of private industry has been broadened to an extent unprecedented in this country. This is particularly illustrated in the food producing and distributing industries and in the export trade. Compliance with Government regulations is legally enforceable through a system of revocable licenses. In practice, a difficulty arises in the case of units so large that their production is indispensable. For the grain trade, moreover, the Government has established and finances a corporation which is authorized to buy and sell all the grain produced. As a buyer for its own needs and for those of its Allies, the Government is the main factor in the market for many of the most important staple products.

The opinion has been observable in some quarters that in taking these necessary war measures, which sometimes involved making prices with representatives of a trade acting as a group and sometimes combining a whole industry under Government management, the United States was breaking away from its traditional policy with regard to combinations. It has even been said that the Sherman Act itself was a dead letter.

There is no justification for this view. The Attorney General was consulted by the Government before it made price agreements with various industries covering war supplies. Further in the Lever Act (August 10, 1917), which established executive price-making power for food and fuel, an additional provision was made to the penal laws against combinations. This law provides as follows:

Sec. 4. That it is hereby made unlawful for any person willfully to destroy any necessities for the purpose of enhancing the price or restricting the supply thereof; knowingly to commit waste or willfully to permit preventable deterioration of any necessities in or in connection with their production, manufacture, or distribution; to hoard, as defined in section six of this Act, any necessities; to monopolize or attempt to monopolize, either locally or generally, any necessities; to engage in any discriminatory or unfair or any deceptive or wasteful practice or device, or to make any un-

just or unreasonable rate or charge, in handling or dealing in or with any necessities; to conspire, combine, agree, or arrange with any other person (a) to limit the facilities for transporting, producing, harvesting, manufacturing, supplying, storing, or dealing in any necessities; (b) to restrict the supply of any necessities; (c) to restrict distribution of any necessities; (d) to prevent, limit, or lessen the manufacture or production of any necessities in order to enhance the price thereof; or (e) to exact excessive prices for any necessities; or to aid or abet the doing of any act made unlawful by this section.

It has also been said that the Webb Act was an "ice-breaker" to do away with the Sherman Act. The legal and economic effects of the Webb Act as well as of Section 6 of the Clayton Act, both of which in terms, at least, seem to limit the applicability of the Sherman Act, time alone will make clear, but, if hopes of a repeal of the Sherman Act are based thereon, they apparently do not take account of the fact that certain classes have now got what they want and therefore are not likely to concern themselves much more about the matter.

A Reconstruction Policy and Its Determinants.—The discussion of the policy of "reconstruction" in the United States demands most of all a broad consideration of principles rather than a detached appraisal of particular measures which are planned without relation to fundamental conditions and ultimate aims. Each class or interest in the country will very likely advance propositions in which it has a peculiar and present interest, with little regard to a general policy or the conditions that will have to be met. The consideration of the problem of "concentration and control" must, like all other reconstruction programs, be in agreement with the general policies adopted, whether in international relations or in domestic affairs.

The policy of international reconstruction for the United States as for its Allies depends, in the first place, on the situation when the war ends. Until the German menace is removed the free nations of the world will, of necessity, implacably oppose Germany with every means, military or economic, which they command. When the war ends with the complete removal of the

German menace of militarism, either by a German democratic revolution or by putting such shackles on Germany military and economic power that other nations need no longer fear German political or economic aggression, then reconstruction may be planned on the basis of international justice and amity, which are the best guarantees of future peace. Such a policy might include preventive measures to avoid future economic aggression and to safeguard national economic independence, but it would preclude a program of economic war after the war.

The program of reconstruction as a matter of domestic policy will depend to a great extent on how long the war lasts. It is safe to predict that the longer it lasts the more radical will be the changes afterward, and the countries which have been in the war the longest will probably experience the greatest changes.

The direction of these changes, furthermore, will be of a democratic nature. Whether this has a bolshevist character or not will depend largely on the wisdom, not only of political leaders and the people generally, but also of the capitalists, the labor leaders, and the farmers' organizations.

The condition of Russia, first despotism and then anarchy, could not have existed if there had been, on the one hand, a numerous and intelligent peasant proprietor class, and, on the other hand, a numerous and well-to-do class of small manufacturers, artisans, and shopkeepers.

The most stable and truly democratic states are those in which there is a very wide distribution of wealth in moderate amounts among a large percentage of the population. The system of large land holdings and excessive concentration of industrial capital can be long maintained only by despotic governments. These are commonplaces of historical experience.

The democratic plan of reconstruction requires that there shall be both opportunity and economic rewards for enterprise, industry and thrift, and that the way shall be opened to each, according to his talents, by means of public education and the reasonable regulation of work and wages. This is consistent with the development of large corporations by normal methods of growth in those industries which require them.

Furthermore, except in so far as it benefits the commonwealth through the promotion of popular industry and thrift, the unexploited natural resources of the Nation should not be allowed

to be preëmpted or made the subject of private hoarding or speculation, either to obtain monopolistic gains or the unearned increment in value from social progress.

The International Aspect of Subsidized Industries.—Assuming these as the guiding principles, international arrangements in respect to concentration and control or domestic arrangements affecting international relations should have for their primary purpose the avoidance of all methods or practices which unnecessarily sharpen commercial rivalry or give to it a national stamp. Nations should seek a free and fair field for their respective nationals but should not strive to acquire for them special privileges or to organize them in economic groups to dominate foreign trade. This is the danger of the Webb Act, which can be justified only, if at all, as a defensive measure, and not as the wisest policy of international dealing.

It would be much better if the nations of the world would come to a general agreement on this subject similar to that arrived at under the Brussels Sugar Convention of 1902. Before that international agreement was made the sugar industry in various important producing countries had been nationally organized in cartels, and these had been encouraged and promoted by Government export bounties and high tariff duties. This led to high prices in the domestic markets of the producing countries and to unduly low prices in the open export markets—that is, to dumping. The Brussels convention prohibited such artificial aids and limited customs taxes to a low rate, with the result that the cartels went to pieces and more reasonable prices prevailed both in domestic and export markets. The practicability of such useful agreements depends largely, of course, on the existence of liberal governments which can be relied on for the faithful observance of treaties.

In the same way unfair competition in international trade might be abolished by treaty arrangements, and it is interesting to note that in this matter, also, international agreements have been already established with respect to a limited class of cases—that is, those that relate to the unfair use of trade-marks, etc.

For the enforcement of the Brussels Sugar Convention an international commission or tribunal was established which functioned successfully. Indeed, its decision in 1903 led Austria to

repeal a law which regulated the sugar trade only a few months after its enactment. This again furnishes a precedent for international commissions in the future to administer not only international agreements regarding export combinations but also international agreements regarding unfair competition.

Outlines of a Domestic Policy.—In domestic reconstruction, the guiding principles stated above being followed, it is plain that not only the prohibitions against private monopolistic combinations should not be abolished, but also that these prohibitions should be made more effective by removing as far as possible any economic causes that tend to create such combinations.

Where, as in the railroad business, concentration may have economic advantages so great as to make unity of organization socially desirable, the control of that organization should be completely in the hands of the commonwealth, either through rate regulation or through direct operation. In ordinary industry and trade, however, the maximum social advantage is not in concentration and unitary organization, but rather in the competition of numerous efficient private enterprises. Deprived of monopolistic control of natural resources and of unlawful preferences in transportation and prevented from engaging in unfair competitive methods or monopolistic combinations, there are very few lines of industry in which efficient competitors, whether new or old, will not have a fair chance for successful development.

Destructive competition is more often alleged than found but is most likely to occur where there is an undue acquisition of reserve supplies of natural resources, the result generally of speculative investment rather than the immediate need of industry. Such natural resources as crude oil, coal, iron ore, timber, and water power should never have been allowed to become a subject of speculation, nor of private ownership, except in so far as they were required for specific and immediate exploitation. Indeed, a natural resource like water power should not be alienated at all, but publicly developed and operated, or else leased under the strictest public control as to rates and only for a limited period of time.

The nature of the resource or facility should be considered in each case and utilized accordingly. It would never be argued to-day that rivers should be appropriated to exclusive private

use as a means of transportation, nor, on the other hand, would any one demand a Government monopoly in the use of this facility for transportation. The nature of the facility is of such a character that common use by private enterprise is universally regarded as the most expedient.

A fair consideration, therefore, of the nature of the business, or of the natural resource affected, should decide the method of utilization. In general, private industry with competition, to the exclusion of monopoly or monopolistic combinations, and with obnoxious conglomerations of unrelated industries effectively prohibited; in some cases private monopoly fully controlled by the Government, or direct Government operation; the reacquisition by the commonwealth of important exhaustible natural resources, not needed for immediate private exploitation, and the prevention of monopoly in their use; in cases of inexhaustible natural resources, technically incapable of division or common use, the grant of the use for limited periods and under strict control—these seem to be fair conclusions of the policy of reconstruction which relate to the question of concentration and control.

PART III

**ADJUSTMENTS IN TRADE AND
FINANCE**

XI

THE RAILROAD PROBLEM

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RECENT RAILROAD HISTORY

In considering the reconstruction of the American railroad system after the war it is quite plain that certain factors, at present unknown, are going to loom very large. There are going to be several undetermined x and y values in the equation. For this reason the method of treatment at this time should not, I think, be primarily statistical. Besides, the subject is huge, politically as well as economically. If we can avoid the bewilderment of its details, I think we shall have the best chance of grasping the fundamentals of the railroad problem.

Least of all do we need to spend much time on railroad history. To get the proper environment, however, let us see if we cannot divide American railroad development into its three natural stages. The construction period came first. It was of primary national importance that lines be built, to enable the enormous, undeveloped country to function as a political and economic unit, instead of as a series of isolated communities. The Union Pacific Railroad was laid out with the avowed purpose of tying the East and the West together, at a time when the maintenance of the Union was the chief thought of the best minds of the Nation. The encouragement given to every new project by the governing bodies, local, State, and national, was extreme, and

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the railroads, up to approximately the panic of '93, were built as promising commercial ventures.

Now, it was quite obvious that a railroad system built as a result of speculation would contain the seeds of trouble, and the results were just what might have been anticipated. The roads were overbuilt in the decade prior to 1893. This lack of balance between facilities and the need for them accelerated the collapse of that year and the "long drag" which followed. The way to overcome this difficulty, it was believed, was to reorganize the weak, small units and consolidate them into strong groups with able executive and financial leadership. This, in general, was what happened between the troubles of 1893 and the first Roosevelt administration. This process, however, brought its own problems. Although these difficulties had attended American railroad construction from the earliest days, they became intensified and prominent at a time when the country was subjecting itself to national introspection or "muckraking."

The strong-handed reconstruction of the American railroad system in those days accomplished an immense amount of good. However, it was attended by many instances of improper legislative influence and control, by a good deal of the speculative operations popularly described as "high finance," and by a certain spirit of domination, very much exaggerated in the popular conception, which made it appear that the local community was at the mercy of an absentee management, seeking its own advantage at the expense of the public interest.

By the next decade it became quite plain that the smoke of this conflagration greatly exceeded the flames. Nevertheless, a huge political issue, which is still fresh in the minds of most voters, arose and led directly to the third stage in development—that of exceedingly tight public control of privately owned enterprises. This fact by itself is not especially significant. There have been many instances of beneficent tight public control of private enterprises, both here and abroad. The difficulty lay in the fact that, in the heat of the hour, we managed to separate authority and responsibility. The Interstate Commerce Commission had great authority vested in it, especially with reference to the question of rates or income; it had no responsibility and accepted none with reference to expenditures or costs.

It is, I think, a fundamental of any good organization that authority and responsibility should be lodged under the same roof, and the failure to apply this cardinal principle led unmistakably to the grave dangers and evils that rapidly developed in this third epoch, which only terminated on the twenty-sixth day of December, 1917, by virtue of the President's proclamation. The difficulty was simple and fundamental. The roads were built, equipped, and maintained by private capital. The governmental program of rate making, wage adjusting, and miscellaneous regulation brought about a condition where private capital was no longer adequately protected or remunerated in railroad investments. Private capital thereupon withdrew to a considerable extent from the market, leaving no fund with which extensions or betterments could be made. As the war advanced, and the needs of Government finance became more and more pressing, it was obvious that large issues of maturing obligations could not be provided for or could be met only at excessive cost and in direct competition with war loans.

The Assumption of Railroad Operation by the Government.—On December 26, 1917, the President took possession of all the railroads of the United States, under authority conferred by the Army Appropriation Act of August 29, 1917, and in thus cutting the Gordian knot he imparted a sense of relief and security to the legion of American holders of railroad securities, which was reflected in a sensational overnight advance on the stock exchange. His plan of organization was simple and admirable. He constituted Secretary McAdoo Director General of Railroads, who proceeded at once to work out executive control by the appointment of a number of conspicuously able railroad executives as his operating aides. Authority and responsibility were now lodged together, although it is undoubtedly true that the enactments of March, 1918, by fixing the ultimate rate-making power with the Interstate Commerce Commission instead of with the President, as originally provided, have been a step in the wrong direction. It was further provided that the railroads should be turned back to their owners within twenty-one months after the termination of the war. Our present task is to consider the problems likely to be presented at that time, with due allowance for the unknown factors of the equation.

The Need of Studying Terms of Resumption of Private Operation.—We should not fail to note that the enactment providing for the return of the roads, while constituting a highly important expression of opinion, may not be final. The whole question is political and quite subject to popular review and to campaign propaganda, so that we may be far from the condition of final settlement indicated by the terms of the act. In the meantime, unless some of the fundamental difficulties of the pre-war régime can be anticipated and provided for in the terms of resumption, the problem will not have been solved at all. In other words, if the roads are turned back to their owners with wages much higher, as they doubtless will be, and with no definite understanding as to the method of compensating for the new costs by rate adjustment, there will be no inducement to capital to take up the recurring problems of extension and improvement or of the refinance of maturing obligations. This condition would naturally lead to a further crop of receiverships, followed by persistent agitation for Government ownership, on the ground that private ownership had broken down.

It is going to be worth while, therefore, to visualize this problem before it arrives, because the time to find the answer to it is before the roads are turned back, not afterward. If we make no special provisions for the obvious difficulties, we shall, by the mere force of circumstances, have advanced a long way on the path toward Government ownership.

Difficulties of Government Ownership.—So far the United States has resolutely set its face against Government ownership of the railroads, for reasons which may perhaps be summarized very briefly as follows:

(1) It is believed, and probably correctly, that private ownership is more flexible and more resourceful than Government ownership, partly for competitive reasons and partly because private ownership is at all times the subject of criticism, suggestion, and regulation, whereas Government ownership can be effectively criticised or regulated only at the polls, and this process is not conducive to administrative betterment in detail. In a word, private ownership means better service.

(2) There is genuine fear, perhaps well founded, of building up a huge body of political servants attached to the party in power by the same kind of influences that affect city employees. New York and Philadelphia have afforded the classic instances of this danger, but the application of the principle has not been confined to these two cities.

(3) The "pork barrel" method of balanced appropriations, with local prestige rather than economic utility the test of extensions, improvements, and efficient service, is perhaps the most glaring danger which threatens Government ownership under our political system. A similar danger, although different in terms, is typified by the pension legislation of the last forty years. It would take special legislative courage to resist cumulative wage increases for political purposes.

(4) Although the immediate exchange of governmental obligations, direct or contingent, for the present railroad securities would perhaps effect some legitimate saving in disbursements to the former owners of the properties, our experience with inefficient government would not lead us to expect that the roads would continue to earn as good surpluses under Government ownership as they have earned heretofore. In that case the governmental obligations would prove a burden to the whole body politic unless rates should be increased in proportion to the inefficiency of the new management. The result, in either case, would probably be expensive to the country as compared to the results under private ownership.

(5) From a political standpoint the individual States would be apt to oppose vigorously any arrangement which threatened to deprive them of the very remunerative taxes derived under the present system, although some rearrangement of the taxation plan is desirable. The same comment might be made about State regulations, but many of these are so exasperatingly bad that I cannot think that we shall pass through the present transition period without some clear-sighted attempt to mitigate this evil.²

² One illustration will suffice to show how hampering a State commission can be when it sets its own dignity above the public interest. The Texas & Pacific, in order to conserve coal supply and insure the regular movement of sugar traffic, eliminated nine branch-line passenger trains. The Railroad Commission of Louisiana on November 22, 1917, imposed a fine of \$5,000 for an "arbitrary, willful, deliberate, and flagrant" violation of the rule of the commission which forbids the dis-

Whether or not these reasons are controlling ones, I think they must not be overlooked at the present stage of affairs. It will undoubtedly be possible to avoid Government ownership, or it will be possible to steer for it as a matter of national policy, with a clear and definite effort to minimize the evils mentioned above, but the gravest danger of all would be to stumble into it under the impression that we were doing something else. The present period of temporary Government administration comes very opportunely and gives the Nation a chance to stand aloof and study both the question of future administration and the merits and defects of past administration on rational grounds, without the temptation to enact planless, piecemeal legislation from month to month.

SOME PROBLEMS CALLING FOR TREATMENT

Whatever new problems the future may bring, I think we can definitely assume that at least three major points will have to be decided when, or before, the roads are turned back to their owners. As of first importance, I should list the determination of the kind of regulatory control which the Government is in future to exercise. Second, there is the interrelation of rates to wages and to the changing costs of all the raw materials of operation. Third, and of course dependent on the first two, is the problem of obtaining private capital in sufficient amounts and at proper rates of return, to carry on extensions and betterments of the existing system.

CONCENTRATION OF AUTHORITY AND RESPONSIBILITY

The essence of good regulatory control, in my judgment, is the concentration of authority and responsibility in the same office, as a result of the lack of which most of the railroads' troubles during the last fifteen years have arisen. It is certainly very undesirable that the railroads ever again find themselves in a continuance of a passenger train without the consent of the commission. It was further ordered that the fine should be increased by \$5,000 for every day that the violation of the rule continued. Fortunately the Federal court came to the rescue with a temporary injunction.—"War Administration of the Railways of the United States and Great Britain," by F. H. Dixon and J. H. Parmelee.

situation in which their rates are made by the Interstate Commerce Commission, plus the legislatures and commissions of every State in the Union, without reference to the cost of wage enactments, full-crew laws, demurrage laws, State taxes, and the host of expenses forced upon the roads by coördinate legislative action. If the roads are to be solvent, whoever operates them, the intake and outgo of revenue must be considered as integral parts of the same problem.

Now, to get the problem stated in tangible form for discussion in the forum of public opinion, let us make two primary assumptions—first, that private ownership and operation are better than Government ownership and operation for the purposes of this country; second, that we are committed to a national policy of full regulation. On this basis, how can the regulation best be applied so as to aid and stimulate good railroad operation, while fully protecting the public interest?

The chief difficulty which confronts us at this point is that the railroads are operating under charters granted by the separate States, and that State autonomy, being a cardinal principle in our plan of government, is not a thing that can lightly be brushed aside, although State lines have no real relation whatever to the conduct of the national transportation system. Here again we face the problem of making rates and regulations interdependent, and it is much complicated by the need that the rate-making system shall be national, while operating expenses have been profoundly affected by a regulatory system which is not primarily concerned with the national interest.

Federal incorporation has been suggested as a remedy for this, and it is perhaps the best and most obvious remedy at hand, but, even if it is accomplished, there will remain the problem of getting the States to relinquish certain principles and privileges of local sovereignty which they have long exercised. For this reason, it has always seemed to me that Federal incorporation was only part of the solution and that we must find some additional method of using and harmonizing the regulative machinery already at hand.

Generally speaking, the scheme of railroad regulation in the most advanced European countries has rested on the principle of the full utilization of local bodies in an advisory capacity, while the formulation of definitive regulation, including rate-making,

has proceeded from governmental headquarters.³ It seems reasonable to hope that some such device can be worked out in this country, in spite of the difficulties. It must be worked out with

³In the April, 1915, issue of *The Yale Review*, I summarized the methods by which the leading European countries made use of the principle of the advisory council in connection with a governmental executive office, as follows:

In England the Railway and Canal Commission, a body in many ways analogous to the Interstate Commerce Commission, judges of the reasonableness of rates; but the Board of Trade, which is a branch of the Government, formulated the maximum rate schedules of 1891-1902 for enactment by Parliament and maintains a railway department which deals with privately owned and operated companies like our own and is in every sense a national administrative body. In Germany the *Bundesrath*, or Federal Council, made up of delegates appointed by the various States, maintains the *Reichs-Eisenbahnamt*, an executive office, and deals with matters affecting the Empire as a whole; while the Prussian Minister of Public Works, for example, is practically supreme in the local administration of Prussian railroad matters, working at the head of an elaborate system of councils and directories, so constituted that the advisory and consultative boards are carefully separated from the executive board. The Minister of Public Works manages the State-owned roads and supervises the private-owned ones.

In France, where private companies own much the greater proportion of mileage, the Minister of Public Works is similarly vested with executive authority, supported by four permanent boards or committees dealing with various branches of the service but deriving their authority from the Public Works Office. Italy carefully separates the administrative functions of her Minister of Public Works from the general national control exercised by the Department of Railways, headed by a permanent council of the Railway Administration, which has nine members, whose qualifications are prescribed by statute. Private-owned roads in Italy constitute about 15 per cent of the total.

In short, we find the commission, or consulting council, an essential part of the regulative plan all over Europe; but the tendency is equally plain to unite the specialized functions of these bodies in an executive office which exercises the authority and accepts the responsibility. The Prussian advisory councils, for example, were instituted with the express purpose of considering traffic and rate changes from the combined standpoint of the management and the public, but these councils do not possess the rate-making power; their suggestions are carried up through the district directories to the general advisory council, whose function it is to supply information and advice to the Minister of Public Works. Sometimes this machinery has been over-elaborated, as in France, where the great Commercial Advisory Board, which deals with minor rate changes, is headed by a permanent committee of sixty eight members and works slowly. But provision has everywhere been made to deal with the railroads and their major problems in their entirety; we alone have failed to create a general railroad office with this function, although the need for it is much heightened in this country by our system of State autonomy.

the object of concentrating authority and responsibility. In other words, any regulatory plan adopted in the interest of the public will be weighed and adjusted with reference to the cardinal principle that any new expenses which the carriers have to meet must be compensated by the rates which they receive.

As a tentative plan, suppose that we should adopt national incorporation, and that the State railroad commissions could be induced to act as advisory bodies to a group of regional commissions, representing groups of States. The Government could properly be represented on these regional commissions. The recommendations of the regional bodies could then pass to the Interstate Commerce Commission, which is admirably adapted to conduct investigations and to recommend definitive action. This should not only be based on the regional recommendations but supplemented by its own full records and wide experience. The final decision, however, for the purpose of correlating income and outgo, should undoubtedly rest with a higher authority. It is not in line with the workings of our judicial system that the same body should be the prosecuting attorney, jury, and judge, and yet that is just what we have required of the Interstate Commerce Commission in the past.

The results, under the present system, have been precisely what we should have anticipated. The commission has been an excellent referee on rate cases in the abstract, but it has repeatedly refused to connect its decisions with the extraneous State and congressional legislation affecting wages and operating requirements. Suppose, then, that we relieve it of responsibility which it does not want, by creating a Government railroad director, with powers broad enough to enable him to give the final decision on questions affecting regulation and rates as well, as brought up to him by the regional boards and the Commerce Commission. If he is given a place in the President's cabinet, so much the better, especially if cabinet officers, as true department heads, can be given direct access to Congress for the purpose of formulating and reporting their policies.

These suggestions involve a considerable departure from our existing system of regulations, but I think we should not, for that reason, hesitate to throw them into the field of discussion. The existing system has been evolved piecemeal and has shown its inadequacy to meet the full requirements of the situation, as

illustrated by the fact that over forty thousand miles of railroad in this country were in receivers' hands during 1916. During years of crisis, with the urgent need for new facilities, we have seen new construction drop to the lowest figures since the Civil War, and the private investor, who must pay for the needed improvements, has had no encouragement to take up the task, being quite well aware that our national agency for governing incoming revenue was unwilling to accept responsibility for the expense side of the program.

THE MEASURE OF A FAIR RETURN

For purposes of discussion let us suppose, then, that we arrive at a concentration of authority and responsibility which will assure a rate program adequate to cover the expense program. It is quite obvious that rates on competing lines must be uniform; otherwise, other things being equal, all the traffic will flow over the line with the lowest rates. How are we going to adjust this, in view of the fact that the wide existing differences between the facilities and financial stability of the various roads will bring the necessary result that a living rate for the weak road may provide excessive profits for the strong road in the same territory?

Before the war we were slowly and painfully working along the line of thought that the measure of fair return to the owners of a railroad property was some percentage (not yet fixed) on the investment, as determined by valuation. The Interstate Commerce Commission's Division of Valuation, by an exceedingly slow, laborious, and costly process, has been endeavoring to get at a figure representing "cost of reproduction new," as required by the congressional enactment. Were this information at hand to-day for all the railroads of the country, it would undoubtedly be of value, although by no means a complete solution of the problem, but the work has developed some difficulties of a very fundamental character. Perhaps the foremost of these is the apparent endlessness of the task of compilation, which makes it certain that whatever national plan is adopted to meet the present situation will, from the nature of the case, have to be adopted long before the valuation figures are available. There

are two other formidable difficulties, however, which confront the valuation plan.

One of these concerns the construction of the phrase "cost of reproduction new." Take as an instance the famous Ogden-Lucin cut-off across Great Salt Lake. When the Union Pacific-Central Pacific system was pushed through to the coast, it was beyond the possibilities of the then current finance to undertake this immense and costly project, and a roundabout detour was made, which carried the traffic for many years. According to the construction of the law by the Division of Valuation, the "cost of reproduction new" of the through line could not contemplate the fact that the stockholders had previously provided and then discarded an alternative route. Similarly, the straightening out and rebuilding of all the principal systems has resulted in the abandonment of many thousand miles of earlier construction, unfitted for modern traffic requirements by reason of grades or curvature. There is an obvious and quite unsettled injustice in depriving stockholders of a return on what is called "built-up" reproduction cost, as against the present reproduction cost of the finished product, which could never have been perfected without the earlier and cruder lines of communication.

On the other side of the question, if the commission values the holdings of the New York Central in New York City, or of the Pennsylvania in Philadelphia, at "cost of reproduction new," it is going to arrive at huge figures, enormously in excess of original costs. The valuation rule, in other words, should apply both ways if it is to receive the final sanction of the courts. In one of these cases it is unfair to the stockholders; in the other, to the public.

THE ENGLISH STANDARD OF A FAIR RETURN

The necessity of a quick decision on questions of this kind, under stimulus of war necessity, has evolved another yardstick with which to measure fair return to stockholders. We may describe it as the measure of past performance, and, although crude, it possesses certain definite advantages. A striking instance of this was afforded by the arrangements entered into when Great Britain took over the operation of her railways, for war purposes, in 1914. By primary authority of the Regulation of the

Forces Act of 1871, supplemented by mutual agreement between the Government and the railways, virtually the whole railway system of Great Britain was taken over by the Government on August 5. The Government treasury agreed to pay to the railways, at certain intervals, such sums of money as would bring their net income for the period to the level of the last corresponding period before the outbreak of the war.⁴

Disregarding a temporary modification of this measure, afterward abandoned, the year 1913 was made the yardstick, and the income accruing to the railways was based on the operations of that year. Following somewhat similar procedure, President Wilson took over our own roads on December 28, 1917. The proclamation stated that Director-General McAdoo should "enter upon negotiations with the several companies looking to agreements for just and reasonable compensation for the possession, use, and control of their respective properties on the basis of an annual guaranteed compensation, above accruing depreciation and the maintenance of their properties, equivalent, as nearly as may be, to the average of the net operating income thereof for the three-year period ending June 30, 1917, the results of such negotiations to be reported to me for such action as may be appropriate and lawful."

In both of these instances past performance was used as an immediately available basis of future compensation. The method was admittedly not scientific, but the reaction to it by the public of both countries showed that it was almost universally regarded as being fair and acceptable.

As a possible commentary on this plan, with special reference to its availability as a peace-time measure, the recent action in Canada is, I think, of considerable importance. In April, 1917, the Royal Commission appointed to report on the general problems of transportation in Canada made its report. The commission was composed of Sir Henry Drayton, William M. Acworth, and A. H. Smith, an especially strong personnel. It was peculiarly well qualified to pass on the basic difficulty arising out of the fact that Canadian railways had been somewhat overbuilt with reference to the immediate traffic needs of the country—that one of the roads, the Canadian Pacific, was conspicu-

⁴F. H. Dixon and J. H. Parmelee, "War Administration of the Railways in the United States and Great Britain."

ously strong and solvent, while three others, the Grand Trunk, Grand Trunk Pacific, and Canadian Northern, were conspicuously in need of help, and a fourth, the Intercolonial, had always done especially badly under direct Government ownership and administration.

Smith, in a minority report, recommended that the policy should be straight private ownership and control, after the weak roads had compounded their difficulties with the Government. Drayton and Acworth, in the majority report, recommended, first, that the operations of the Canadian Pacific should be left alone, and then that the weak roads, including the Intercolonial, should be turned over to a board of trustees incorporated by Act of Parliament as the Dominion Railway Company. The Government was to assume responsibility to the Dominion Railway Company for the interest on the existing securities of the properties turned over, and the Board of Railway Commissioners was to have full judicial authority over the company.

THE CANADIAN PROFIT-SHARING PLAN

Here again we see the principle of accepting past performance, or prior status, as a measure of compensation. But in working it out Canada has adopted another principle, which may perhaps have an important bearing on our own problem. On March 15, 1918, a general advance of 15 per cent on Canadian railway rates went into effect. It was recognized that this would work like a gratuitous bonus to the strong Canadian Pacific system. Accordingly a measure was adopted providing, in effect, that the operations of that road for 1917 should be taken as the yardstick, and that all increased revenue after January 1, 1918, accruing to it from the increase in rates should be divided with the Government, which should take, as a special tax, 50 per cent of the excess above the amount necessary to pay 7 per cent on the common stock.

Now, in working out our after-war readjustments of the transportation problem, whatever other questions may arise, we are quite sure to be confronted by the need of fixing some fair basis of adjusting minimum return to investors, especially in the case of the roads which most need developing, and we are also quite sure to have to consider whether or not that minimum return

shall be the maximum. Most of the industrial progress of the world has been made under the policy of reward for successful undertaking. If there is to be no reward, there are not likely to be many chances taken of the kind which have resulted in serving every corner of the country with railroad facilities, often provided far in advance of the traffic that ultimately justified them.

For every hundred square miles of territory New Jersey has, to-day, nearly 31 miles of railroad; Pennsylvania has 26, and Ohio has 22. Oregon, on the other hand, has about $3\frac{1}{4}$ miles, Utah has $2\frac{1}{2}$ miles, and Wyoming has a scant 2 miles. New Jersey, Pennsylvania, and Ohio railroads were built up under the principle of reward for successful endeavor. What shall we say to the inhabitants of the thinly settled States if we so change the rules of the game that the railroad builder in those parts stands to make a maximum of 6 or 7 per cent on his investment if he is successful, and nothing at all if he takes a promoter's chance and builds too far ahead of the traffic? One of the tests of private operation is going to be its courage and resourcefulness in development work. Our future arrangements must reckon with the fact that capital must be tempted, not driven.

Without attempt at formulating a specific plan, it seems to me that the Canadian Pacific plan of dividing with the Government earnings above a specified return to the investor may hold the clue to the solution of our own problem. A similar thing has been done by various municipalities in working out their local transit adjustments, notably in the arrangements between the City of New York and the rapid-transit subways, but with the important difference that municipal capital, or quasi-municipal capital, has in several cases been furnished as a prerequisite to the plan. In adjusting the railroad situation after the war, it is by no means apparent that the Government will have to make capital advances, provided the connection of rates and expenses is made an understood part of a liberal plan.

At the present time, however, American railroads are paying a tax bill of 150 millions per year, and some device whereby tax payments could be increased on a profit-sharing basis would probably be generally acceptable, subject to the difficulty of adjustment between the Federal Government and the States that are now receiving nearly all this tax money. From the broader as-

pects of the case, it is probable that a profit-sharing plan would also work much to the benefit of the roads, as a perpetual demonstration of the importance of keeping rates in line with changing expenditures.

WAGES AND PRICES

The labor question, with special reference to after-war conditions, should receive careful consideration in this connection. Public attention has been focused on the recurring efforts of two or three strong railroad brotherhoods to bring about a higher wage scale, so that at the time of the passage of the Adamson bill a condition very close to a national scandal resulted. By and large, however, it is probably fair to say that the general body of railroad employees have received low rather than high wages, as measured by the general standards of the community. In 1914, as shown by the statistical report of the Interstate Commerce Commission, the average compensation of enginemen (excluding those on roads earning less than \$100,000 per year) was \$5.24 per day, and of conductors \$4.47 per day. Carpenters, however, averaged only \$2.66, station agents \$2.33, and trackmen \$1.59. Since 1892 enginemen's wages had gone up 42 per cent and trackmen's wages only 30 per cent.

Now, it is well established that a great war, by causing a scarcity both of labor and of commodities, forces up both nominal wages and commodity prices. Wages have a more conservative tendency than commodity prices and move more slowly, so that, while the war lasts, the workingman usually finds that he is suffering some loss in his real wage, or power to purchase commodities. After the economic disturbance is over, however, commodities decline faster than nominal wages do, and it is reasonable to expect that some of the advance in real wages will be permanent after the war is over. This is apt to be particularly marked, as Thorold Rogers demonstrated, in the lower grades of labor. In other words, although the great wage advances in all industries during the last two years can not be expected to be permanent after commodity prices fall, it is quite certain that a portion of the advance will remain, acquiring the characteristics of a tradition.

So far as commodity prices are concerned, the excess of war

214 AMERICAN PROBLEMS OF RECONSTRUCTION

demand over supply has produced results familiar to everybody. In the railroad-equipment market two illustrations suffice. A specified type of steel coal car used by the Pennsylvania Railroad in January, 1916, cost \$1,466. The same type of car in February, 1917, cost \$3,742. Mikado locomotives weight 278,000 pounds, purchased by the Illinois Central in February, 1915, cost \$22,205. In February, 1917, similar locomotives were purchased by the same road for \$41,661 each.⁵ It is not to assume a heavy decline in such prices as these after the war but this decline may well be deferred by a number of different factors. Much will depend on the question of immigration and the consequent supply of labor. A good deal may depend upon the extent to which the stronger nations, by perfecting their currency and effectually reducing the gold cover necessary to stabilize that currency, find themselves equipped, after the war with an excessive monetary stock and a consequent high rate of commodity prices.⁶ In any case, we must assume, I think, that the world scarcity of raw materials and manufactured articles alike will postpone for a considerable period the return to lower prices.

This brief consideration of wages and commodity prices constitutes somewhat of a digression, but it will be justified as soon as it serves to sharpen appreciation of the peculiarly vital task which rests with the man who is to make our railroad rates in the first few years after the war. The railroads pay out more

⁵ *The Railway Age*.

⁶ For many years past the effect of the world's great and increasing production of gold has undoubtedly been heightened by growing efficiency in the use of various kinds of credit instruments, tending to make a dollar of gold support, at parity, an increased amount of credit. This double process has clearly been an important factor in the world-wide depreciation of gold and of credit instruments circulating at a parity with gold, in relation to commodities. The price index number of the British Board of Trade may be cited as bearing on this depreciation. Starting with an index number of 100 in the year 1900, the index number for 1910 was 108.8, and for 1914, 117.2. For 1916, and the extraordinary war influences had made themselves fully felt, was 186.5. Now, one of the special and characteristic features of modern finance is the pressure which it brings to bear on every gold dollar or gold sovereign to carry as large a credit load as possible, and it is quite within the bounds of possibility that the world's gold stock may, after the war, maintain at a parity a materially larger amount of credit currency than heretofore. In that case, a sustained rise in commodity prices, or depreciation of gold with respect to commodities, would be indicated.

for two kinds of things, wages and commodities (excluding for the moment the "overhead" of taxes and interest), and the war-time advances in both of these items have been appalling. They have only one thing to sell, and that is service, expressed in rates. The essential connection between outgo and compensating income has never been shown quite so clearly as it has during the last six months, but it is most noteworthy that this connection was never provided by our system of regulation until President Wilson took over the roads.

SUMMARY

Perhaps we may summarize this discussion by saying, first, that private ownership and operation, subject to full regulation, looks like a much more promising ultimate solution of the railroad problem in the United States than Government ownership. On this point, some of the comments made by the Royal Commissioners in Canada have a timely bearing, and I quote the following from the majority report, at random:

"Our personal belief is strong that, in normal circumstances, railway enterprise is a matter best left in private hands, subject to proper regulation by the Government. Were we asked to advise in the case of the railways of the United Kingdom or the United States, which have been constructed by private companies, with money found by private investors, we should give effect to this belief. . . . We know of no country in the world where a democratic state owns and operates its railways in which politics have not injuriously affected the management of the railways and the railways have not had an injurious effect on politics. We do not think Government ownership of the Canadian railways would tend to reduction of rates, but rather in the contrary direction. For the carriage of one ton of freight one mile the Canadian shipper pays at present on the average three-fourths of one cent. On the railways of New South Wales, the oldest and most important Australian State, where the railways have been in Government hands from the outset, the shipper pays well over two cents. . . . Railway history conclusively refutes the idea that state ownership

216 AMERICAN PROBLEMS OF RECONSTRUCTION

promotes railway development. . . . It is certainly the common belief of ninety-nine business men in a hundred, both in America and in England, that the Government gets less value for its money than a private trader."

As a second point, I think that national incorporation is perhaps an early step to straightening out the tangle between State and Federal sovereignty. In working this out, the creation of a cabinet officer with final referee powers on rates and regulations would certainly simplify the problem, and it would accomplish the immense result of concentrating authority and responsibility in the same office.

Finally, if past performance can be used as the standard of minimum return, at least temporarily, in place of valuation, a great deal of time can undoubtedly be saved in the real problem of reinducing private capital to enter the field. It is also, I think, quite clear that the minimum return must not necessarily be the maximum, and I am inclined to think that some form of profit sharing with the Government, in lieu of taxation, or as a supplement to low taxation, offers the best promise along this line. Under such a system of control the evils due to excessive legislation, of which we may cite the anti-pooling law and parts of the Sherman anti-trust law as typical, could probably be eliminated rather easily, because the national interest would be fully protected and would have a stake in the operating results. And with protection, fair treatment, and a chance of profit, I think there would be no doubt that private capital would reënter the field and furnish the great sums necessary for development.

XII

THE DISTRIBUTION OF AGRICULTURAL PRODUCTS AND THE FUNCTION OF PRODUCE EXCHANGES

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INTRODUCTION

Our whole business structure is undergoing kaleidoscopic changes. Some of these are in consonance with sound public policy and with fundamental economic principles. Others are emergency measures. The former will have some likelihood of permanence; the latter will disappear, with the conditions that called them forth. All, however, must be subjected to thoroughgoing scrutiny. It is our duty, while still at war, to make our plans for the peace that must come and, so far as possible, to have ready an efficient, well-planned business organization to deal with the vast and complex problems of the readjustment period. This result cannot be effected by one man or by any group of men but must be the ideal toward which every trade and trade organization will work. The principle of individual initiative must have full operation in this matter, and it would be most unwise to rely solely upon the principle of authority. Unlike those of the other belligerents, both Ally and enemy, many of our commercial operations and institutions have not yet taken on an even relatively stable war aspect. We are still trying a wide variety of experiments, many of them of dubious value and

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218 AMERICAN PROBLEMS OF RECONSTRUCTION

certain to be discarded after more or less cursory trials. This has been the experience of England, France, and Germany and doubtless will be ours.

THE GENERAL PROBLEM OF DISTRIBUTION OF AGRICULTURAL PRODUCTS

Our problems of agricultural distribution are fundamentally different from those of our Allies and the enemy countries. The distance from Portland, Maine, to Portland, Oregon, is three hundred miles greater than that from New York to London and thirteen hundred miles farther than that from London to Constantinople. It is almost fourteen hundred miles from Duluth to New Orleans, and the distance from Liverpool to Rome is less than one hundred miles greater. France and Germany, with a combined population of about 115,000,000 souls, are about equal in size, and each has about two and one-half times the area of Kansas. The problem of transporting crops in these relatively small and homogeneous areas is fundamentally different from our own. Our greatest needs of the present time, if farm products are to be distributed efficiently and at the lowest cost, may be summarized under a relatively small number of headings.

1. *More Extended Organization of Producers.*—While the middleman system has developed to an unusual degree of efficiency in the United States, there is, nevertheless, great need for more thorough organization of farmers for purposes of facilitating the distribution of their crops. The most obvious benefits from such organization are the opportunity for selling in larger quantities, better standardization of grades, higher perfection in packing, and more intelligent placing in the markets through the use of market information and by means of a greater degree of personal representation in the centers of consumption.

2. *Standardization of Grades and Containers.*—The great objects to be accomplished by this means are the elimination of uncertainty in transactions by the use of common and well-understood terms. A buyer is entitled to know what he is to receive, and the seller is equally entitled to the price of the particular quality he produces. In times of plenty the inferior and dam-

aged portion of any crop should be retained as near the farm as possible and either freed from its perishable character by drying or preserving or else fed to animals. This will not only result in economy to the producer but will save transportation space. An excellent case in point has recently been seen. During 1917 the potato growers of the United States produced a stupendous crop of about 442,000,000 bushels. It was impossible between spring and the marketing of new potatoes to consume millions of bushels of the great surplus on hand. It was the part of good business for every one concerned that only the best qualities of the surplus potatoes should go to market in order that the market might not be glutted and in order that the producer might receive the best possible price.

With respect to standard containers, uniformity wherever practicable is desirable. Why have a barrel of one size for flour, another for apples, and still another for potatoes, when it is altogether likely that investigation would prove that a uniform barrel could be used for most products? This applies to lime, cement, sugar, salt, and many other commodities. Uniform containers also provide opportunity for efficient stacking in freight cars, increasing the carrying capacity of the railroads and also minimizing losses in transit.

3. *Conservation of Products During the Course of Transportation and in Storage.*—Much has already been accomplished with respect to both points in this title. Even so recently as ten years ago the number of truly efficient refrigerator cars was relatively small. Already, largely on account of the investigations and demonstrations of the Department of Agriculture, thousands of cars of efficient and well-adapted types have been constructed. Recently the Master Car Builders' Association, utilizing the experimental results of the Department, has agreed upon a standard type of refrigerator car which will combine the best features of existing equipment and the additional points developed through years of experimentation.

Heater cars for the movement of perishable products during winter are also receiving attention. Every winter hundreds of thousands of bushels of potatoes, apples, and other products are taken from our food supply through freezing in transit.

Storages, both common and cold, are being improved through

the efforts of the industry and of the Government. Added storage facilities are being provided on farms and at country shipping stations. This increase in facilities and the simultaneous improvement at the great central markets are progressing in spite of the exactions of the war industries upon our productive resources. The building up of reserve stocks of wheat of suitable quality for long-time storage deserves some attention. Such a step, however, is of greater importance to Great Britain because of her insular location than to a great continental area like the United States.

4. Collection and Dissemination of Authoritative Market Information.—The organized marketing instrumentalities of the country—exchanges, associations, boards of trade—as well as the merchants engaged in the different trades, have in the past provided a large amount of indispensable information which has facilitated the better marketing of products. Many sections of the country, however, and certain products have not fared as well in this respect as the great staples—cotton, wheat, and corn. Many producing industries of the farm are so widely scattered and so unorganized that it is impossible for any large number of producers to be in possession of up-to-the-minute and reliable information as to prices, supply, demand, or the general condition of the markets. This has resulted in a widespread call for the collection and dissemination by the Government of market information, particularly on all the perishable products. During the past four years an extensive service has been developed covering practically all the fruits and vegetables, livestock and meats, dairy products, and, to some extent, grain and hay. Through a system of over fifteen thousand miles of leased telegraph wires, connecting practically all the important markets of the United States, the U. S. Bureau of Markets furnishes daily prices on those perishable food commodities which constitute a very large proportion, possibly as much as 70 per cent, of our diet. In the important centers of commercial production of the several crops itinerant field offices are conducted during the period of movement of the crop from the particular area. Groups of trained men go from one center to another, following the movement of the crop from each center and furnishing to the producers and to the markets information as to the quantity, quality, move-

ment, and destination of the particular product. In the case of strawberries, for example, with the opening of the shipping season in Florida in February information is gathered and disseminated from the producing area. The experts pass over to Louisiana when the great movement from that territory begins. They follow the movement through Tennessee, Arkansas, the Carolinas, and finally into New Jersey and Massachusetts, where the last berries are usually shipped to market in July. In the case of livestock and meats, the great primary markets of the Middle West are advised each morning before the opening of business as to the meat-trade conditions in the great population centers of the East. Formerly this comprehensive information was possessed only by the strongest firms in the markets, particularly the big packing companies. To-day it is likely that even the small commission man has more reliable information than the packers themselves had a few years ago.

5. *Market Inspection of Perishable Products.*—One of the items of appropriation in the war emergency food acts was that authorizing the inspection of perishable products at the great central markets as to quality and condition upon arrival. Such inspection has now been made available in about thirty cities in the United States, so that the shipper from a distant point may consign his product to a commission man or sell it outright subject to inspection on arrival and be sure that he will not be unfairly treated when his goods get to market. If the receiver advises him that the car or other quantity was received in bad order, the shipper may immediately apply to the food products inspector of this Bureau for a disinterested determination of the facts. The inspector's certificate has the value of prima facie evidence in the courts, so that it is of distinct value in the prosecution of any claims growing out of such transactions. Up to the present time this inspection work has been confined to fruits and vegetables, but as rapidly as personnel can be built up and suitable arrangements made it will undoubtedly be extended to butter, eggs, and other products.

6. *Licensing the Agencies of Distribution.*—When Congress called upon the Department of Agriculture to prepare the first draft of the food-control act, one of the important sections writ-

ten into the bill was the one providing for the licensing of the instrumentalities of importation, exportation, manufacture, storage, and distribution of foods. The Bureau of Markets had given this subject special study for several years. Licensing as contemplated in that act was primarily a means of registration, classification, and supervision of the businesses involved in order that their legitimate places and functions might be defined and rules laid down to prevent abuses. It had in mind the adoption of uniform economic practices, the standardization of charges for services, the prevention of discrimination between customers by those who act as agents, and the installation of uniform cost accounting and record systems, including uniform account sales, in order that the relative efficiency of the various agencies might become apparent. It was not intended to interfere with legitimate competition but to bring about a registration which would make possible the definite mobilization of the machinery of distribution, operating largely on the plans and principles and practices already established by the most reliable and successful firms. This licensing is now being carried on by the Food Administration and is an important instrument in the uncovering of undesirable, vicious, and inefficient practices in our food-handling system. It is too soon to prognosticate, but the advantages to the licensee of a knowledge on the part of the public that he is operating under license and that his charges and methods of dealing are supervised will prove to be so valuable that the system will persist when the emergency which hastened its coming into existence has passed.

7. *Improvement in Methods of Retail Distribution.*—The problems of the retailer and of retail distribution are peculiar and difficult. They have not yet been worked out. Consumers have demanded a high degree of service, which is charged for in the sale of the commodity, so that retail prices have generally seemed out of proportion to wholesale prices. More and more, unnecessary service is being dispensed with and the "cash and carry" stores are thriving in such a way as to force other enterprises to like efficiency. The wholesale trades in farm products are relatively sensitive to supply and demand. The retail trades, however, are not. The great need of the present in retail prices is that they shall fluctuate in sympathy with wholesale prices with relative promptness and to the same relative extent. The

channels of retail distribution finally determine the rate of consumption of any product. If retail prices do not fall in the case of an over-supply and so increase consumption, there can be no market for the farm products held in the storages or at the farmer's shipping point. Under the food-control act retail practices are being improved in some respects. The Commercial Economy Board of the Council of National Defense is suggesting changes calculated to reduce the labor requirements of the merchandising trades, in order that a higher proportion of our man power may be relieved for various types of war service. The Bureau of Markets is promoting better distribution and is trying by various means of publicity to bring about a sympathetic fluctuation between wholesale and retail prices, and to encourage the more general utilization of near-by or home-grown products in order that transportation facilities may to that extent be relieved.

Summary.—It seems likely that many of the changes in agricultural distribution brought about by the war are thoroughly sound in the light of public policy and from an economic standpoint. There is strong likelihood, therefore, that many of them will persist. Undoubtedly the organization of producers will proceed more rapidly as well as more efficiently than in the past. There are at present about eleven thousand so-called coöperative enterprises of various kinds in the agricultural industry of the United States, including for the most part creameries, grain elevators, and fruit, vegetable, or livestock shipping associations. Their number can and will be increased.

With reference to standardization, it has proved to be one of the most important stepping stones of progress in every industry, whether steel and ship building or wheat and cotton. Undoubtedly it will prove its value in other trades and industries. The higher the degree of standardization in distribution the smaller the difference in cost between producer and consumer. Not all products lend themselves readily to the standardization of grades, but a degree of standardization compatible with the nature of the product and of the trading therein is no doubt feasible. All work of this character is being done and properly should be done in coöperation with the trades affected.

The collection and dissemination of market information is peculiarly a function to be performed by such a disinterested agency

as the Government. The beneficial results which have been obtained from it are numerous and easily demonstrable. This service will no doubt be permanent.

The food products inspection service also promises to be permanent, Congress having in the present agricultural appropriation bill agreed to a specific appropriation for this work, hitherto done under emergency funds.

Licensing, constructively applied, has great advantages for the licensee, which in a competitive market he will not wish to lose. Therefore it will no doubt persist.

Improvement in retail distribution waits to a degree upon further knowledge and more thoroughgoing education of a very large and heterogeneous number of merchants.

THE FUNCTION OF PRODUCE EXCHANGES

Types.—There are two general types of produce exchanges. In the class generally known as spot exchanges cash transactions are the chief feature of trading. These exchanges furnish a convenient meeting place for all the merchants in given commodities—a place where information bulletins may be displayed or exchanged and where trading may be carried on under fixed rules and under a discipline calculated to protect both the buyer and the seller. This type of exchange is highly specialized, and, generally speaking, only a single product or the derivatives of a single raw product are traded in on its floors. Examples of this type of organization are furnished by the Memphis Cotton Exchange, the New York Produce Exchange, and the San Francisco Wholesale Dairy Produce Exchange. These exchanges are affected by war-time conditions far less than the “future trading” exchanges. In fact, the chief effect upon the spot exchanges is the indirect one which arises through the regulation of the business of individuals composing the membership. They are important instruments for the determination of spot values. They divert production from different areas by the relative attractiveness of their prices as compared with those at other possible markets. If spot cotton prices for equal grades are higher in Augusta than they are in Savannah, the cotton will move to Augusta; if lower, to Savannah.

As to the great future trading markets, the war has resulted

in many changes and uncertainties. Take, for instance, the Liverpool Cotton Association, which, after the New York Cotton Exchange, is the greatest future contract market for cotton in the world. When the war broke out, in 1914, trading on the Liverpool exchange was stopped completely. There was no trading for months. Outstanding contracts, both hedges and straddles, had to be liquidated by means of any settlement it was found possible to agree upon. As England is one of the greatest cotton-using countries in the world and as all of her cotton must come by ocean transport, the need for a hedging market near to the consuming mills was pressing. As time passed on it became increasingly difficult to do business because of the unusual hazards that arose from being deprived of an organized market in which hedges in particular could be executed against purchases or sales of raw material or finished goods. After many months it was decided by the Board of Trade—the British equivalent of our Federal Department of Commerce, though of different legal powers and duties—to permit very limited trading by the removal of certain restrictions. The favorable effect of even this small concession regarding trading was very apparent and resulted, in due course, in the grant of additional privileges, under careful supervision. More recently a still wider latitude of trading has been permitted, with a reported result that so far as necessary hedging is concerned, Liverpool now performs its function with relative normality.

An experience similar to some extent occurred with respect to the New York Cotton Exchange. When war was declared, in August, 1914, the exchange closed immediately. During July the price of the middling grade of cotton ranged between $12\frac{1}{2}$ and $13\frac{1}{4}$ cents a pound. On July 31, when the crash due to the prospect of war came, the price dropped to less than 9 cents, and by October it had receded to 7 cents, in many places in the South to 6 cents, and in some thoroughly authenticated cases in Texas to as low as 5 cents. The exchanges were closed on July 31, 1914, by their own action as a measure of protection. The "buy a bale" movement and the establishment of a cotton loan fund of \$135,000,000 were features of this trying time. The New York and New Orleans exchanges reopened on November 16, 1914. At that time December contracts under the cotton-futures act sold at about 7.75. The gathering of the largest cotton crop in

history, amounting practically to sixteen million bales, was in progress. There was a slight recession in prices during the first two months after the exchanges reopened, amounting to scarcely a cent a pound, a marvelously slight recession considering the volume of the crop. By January, 1915, the price had recovered 2 cents and ruled slightly above 9 cents. During the period of more than three years that has intervened since the reopening of the exchanges they appear to have performed their functions in an economic and satisfactory fashion. On one or two occasions when undue speculation seemed likely to occur the exchange organizations themselves took steps to curb the undesirable propensities. While cotton prices have advanced to more than 30 cents, they have not increased any more in proportion than those of other products. Factors influencing prices have proved fully as effective as in peace times. Rains during April, 1918, generally favorable conditions for planting, and the prospect of a large acreage promptly resulted in a recession of over 4 cents in price.

Functions of Future Exchanges.—It seems desirable briefly to outline the function of future exchanges, their mode of operation, and the changes that have been made in their usual practices during the war, and to indicate to some extent which of these changes appear to have a permanent character. Briefly, the functions of future markets may be stated as follows:

(1) The affording of a constant market for products by means of contracts for future delivery; (2) the providing of a class of traders of expert business judgment and of large means or credit who professionally assume the risks of carrying products over from the season of production to the time of consumption or manufacture, or from year to year, thus relieving the producer, middleman, and user of the attendant risks; (3) the furnishing of a mechanism for the making, registering, and quoting of prices, in which are focused all the facts affecting supply and demand, both present and prospective, and which reflects the will to buy and the will to sell; (4) the regulation of the flow of products from producer to consumer and from market to market, conformably with the market demand; (5) the relative stabilization of prices over longer and shorter periods; (6) the prompt and constant collection and dissemination of information regarding factors affecting quantities produced or expected and factors affect-

ing crop movement, consumption, exportation, etc.; (7) the regulation of consumption by the prompt adjustment of prices to supply and demand; (8) the facilitation of the financing of crop distribution by the banks through the protection or insurance afforded by hedging; (9) the facilitation of trading by providing a common meeting place for representatives of the producer, distributor, and manufacturer.

Volumes could be written regarding the functions, uses, and abuses of future trading. However, it is now generally believed by those who have given the question closest study that the exchanges are a valuable force in the distribution of the crops to which their method of dealing is applicable, and that while abuses are present, nevertheless the desirable course of action is not to destroy the exchanges but to purify them in whatever respects experience may prove necessary.

The Origin and Execution of a Future Contract for Hedging Purposes.—Future contracts in cotton are always executed in units of 100 bales. Many persons are unfamiliar with the operation of future exchanges. A few brief illustrations may be cited.

A local buyer in the interior of the cotton belt in the course of the day's business, we will assume, purchases 100 bales of cotton. He fixes his price during the course of his day's buying at so many points below the ruling market, the difference in price being for the purpose of covering his transportation costs to the central market, his expenses of all kinds, his profits, and such protection as he feels is necessary against slight fluctuation. At the close of the day or the following morning, either directly or through the cotton merchant to whom he sells, he will order a broker on either the New York or New Orleans Cotton Exchange to sell 100 bales of cotton on a future contract for his account. He will select the particular future month that best suits the needs of his business and the time required for delivery of the cotton at a central market. As the change in price from day to day is relatively slight, he is now protected against any fluctuation in the price of his day's purchases. When his spot cotton reaches the market, or when he sells it to a concentrating buyer or cotton merchant, he orders his broker to buy in a contract for the same month in which he had previously sold. Inasmuch as spots and futures fluctuate in relative unison, any change

in the price of his contract will be taken care of in the price of his spots. If spot cotton recedes in price and the local buyer in the end is compelled to sell for less than he paid, his original hedging price will, nevertheless, protect him from loss.

Similarly, to take it up from the other end, the cotton spinner makes a contract for finished goods requiring, we will say, 1,000 bales of cotton. Immediately upon the consummation of the contract or even prior thereto he will instruct his broker to buy in the future market sufficient cotton to cover the transaction. The use of exchanges for transactions of this character represents their highest utility. Instead of increasing speculation they, in effect, reduce it or at least relieve the owner of the spot article of the risks and concentrate them in the hands of the speculative class.

Similar transactions are carried on in wheat and certain other products. The country elevator, at the close of the day's business, protects itself by selling a hedging contract. The flour miller makes a contract with a merchant baker for 10,000 barrels of flour and immediately orders the execution of a contract in the future market for 45,000 or 50,000 bushels of wheat in order that when the time for grinding the flour comes he may have the wheat at the price contemplated when he made his flour sale.

Modification of Practices on Future Exchanges.—A number of changes may be cited that have been introduced either through the voluntary action of the future trading organizations or at the suggestion of the Government. Section 13 of the food-control law² conferred power of regulation over such exchanges as deal in raw materials of food. Trading in wheat was wholly prohibited; trading in corn was restricted to certain months; fixed maximum settling prices were prescribed in certain cases. In the case of wheat, before trading was stopped altogether short selling was permitted, but all buying except such as arose out of hedge transactions was prohibited. The effect of this was temporarily to depress the market, though later, necessarily, the man who sold short had to buy in his contract or deliver the spot article.

² Of August 10, 1917; 65th Congress, 1st sess., Public No. 41.

Limitations of Fluctuation to a Certain Number of Cents per Day.—This restriction on price movements was carried out, particularly in the case of cotton, with a view to providing against skyrocketing, which sometimes takes place in a sensitive market. It was aimed, however, quite as much at preventing an undue decline as an undue rise in price.

Another important undertaking was the supervision of the open accounts of all trading firms and the limitation of the amount of open trades that they might carry on their books. This plan is now being applied particularly to future trading in corn and oats. It involves investing the board of trade, chamber of commerce, exchange, or other association with complete power to examine persons or their books, papers, and records, in order to determine the extent and nature of all their open contracts in grain and provisions, held either for themselves or for their customers. The executive officers charged with the duty are in full control over the trading of members, their deliveries, and their adjustments of contracts, and they may also determine the nature of the contracts and require a specification of the purposes for which they were entered into. It is stated in the grain trade that this relaxation has already produced a freer movement of grain from country shipping points to market. As it has been in operation only a short time, it is too soon to determine its full effect.

Changes That May Have Permanent Value, and Certain Other Suggestions.—In times of stress the limitation or at least the supervision of the amount of business permitted to be done by outsiders is undoubtedly warranted. Scarcity in a product practically always results in speculation in it. "Fliers" by persons not informed regarding a trade nor engaged in it at such times may have an exceedingly dubious effect.

Most exchanges, both stock and produce, have a coördinate clearing-house organization through which all trades are cleared. Some exchanges are still lacking this very important instrumentality. The proved benefits of the clearing-house system appear to admit of no doubt that they should be a part of every exchange. They furnish the most practical means of supervision.

The limitation of the extent of fluctuation that may take place during any day appears to have a certain permanent value. When

Germany declared her unrestricted submarine warfare against the shipping of the United States a disastrous drop in the price of cotton occurred. During the closing hour on January 31, 1917, the price broke from about 17 to 14 cents a pound. On February 1 the market opened at 14. In ten minutes it was sold down to the low point of the day, 12.50 cents. At 10:30 a. m. it had risen to the high point of the day, 17.25. In less than half an hour after this the price settled down to a level under 16 cents, where it remained relatively steady. No concomitant change in the real value of cotton took place, and spot transactions did not follow the future market, or at least to only a very slight extent. Undue losses and hardships unwarranted by the facts occurred. A proper limitation upon fluctuation will avoid such occurrences.

Straddling between markets, both domestic and foreign, has not been discussed in this paper. It should nevertheless receive careful scrutiny with a view to determining the extent to which arbitrage transactions may or do constitute manipulation. In the case of grain straddles between domestic markets, terminal elevator control is an important factor in this problem.

Exchanges must provide themselves with adequate power to deal with "corners" or "squeezes" undertaken for purposes of market manipulation. Farm producers generally have not familiarized themselves with the function and operation of future exchanges, and many of them are opposed to their operation. There is a wide variety of opinion, most of it perfectly honest, as to the usefulness of these organizations. The experience of the cotton producer, who saw his product lose fully half its value while the exchanges were closed and noted a constant improvement as soon as they reopened, indicates the usefulness of these bodies. Information regarding them should be disseminated in understandable terms. Much of the trouble is due to the highly technical character of the transactions and to the lack of reliable information. It is to be said that the exchanges themselves have rather taken the attitude that it was not worth while to educate the producer.

Producers' organizations feel that they are unjustly denied membership in these bodies. On the other hand, the responsible officers of the exchanges maintain that this is not the case, as any one who is willing to subscribe to their rules and pay the costs and

DISTRIBUTION OF AGRICULTURAL PRODUCTS 231

who has a sufficient credit standing can join. This much seems true with reference to their use and efficiency: the standardizable products traded in upon future exchanges are marketed at a smaller margin between producer and consumer than any other farm products. During the reconstruction period the Nation will need to be efficient in every possible way. It is most desirable that all interested persons should give earnest thought to those steps that may be taken to improve the useful instrumentalities of distribution.

XIII

THE SHIPPING PROBLEM

BY EMORY R. JOHNSON¹

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The Dual Nature of the Shipping Problem.—The problems of American shipping are matters of both the war and the reconstruction periods. For the moment, and possibly for some years to come, the problems of war will be the only ones to which the people of the United States may justly give first consideration. Indeed, until Germany is defeated in her attempt to destroy the civilization of the world and to substitute ruthless might in place of justice as the force controlling the relations of men and nations, it seems out of place to consider what will happen when, with the war ended, the nations of the world can take up the work of rebuilding industries and trade and of reestablishing the fabric of international law. Nevertheless, it may be a patriotic duty to look ahead of the present period of strife and trial to the days when the United States, Great Britain and other maritime nations will again take up the task of using the high seas to bind together the nations of the world in friendly economic intercourse.

When the several nations resume the peaceful pursuit of trade, there will, of course, be competition, and each country may be expected to make the best use of its opportunities and its re-

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sources. Fortunately for the United States there is every reason to expect that its competition with the country which has long been paramount upon the sea will be tempered to a friendly rivalry, and that coöperation will, in a large measure, take the place of competition in the work of rebuilding the world's international trade. This should be the policy of the United States, which, instead of trying to supplant Great Britain upon the seas, even if that were possible, should strive to work with her and other nations whose purposes are to help the world in providing the ships and other facilities required for the maintenance of active commercial intercourse among the nations of the world.

Some Recent History.—The Civil War hastened the decline of the American merchant marine upon the high seas and gave added strength to the forces which for more than half a century kept the total of American deep-sea tonnage at a low figure. But the present war promises to have exactly the opposite influence. Mighty forces are now operating which will almost certainly create an American marine second in strength only to that of the United Kingdom. For a quarter of a century preceding the opening of the European war the total of American shipping registered for the foreign trade did not much exceed 1,000,000 tons gross. The outbreak of the war in 1914 was soon followed by such a demand for ocean shipping that vessels were diverted from the coastwise services, increasing the shipping of the United States in the foreign trade to 2,000,000 tons gross. There was, however, but little increase in the total tonnage of the American merchant marine, and the shortage of tonnage under the American flag continued to become more acute until some time after the United States entered the war. It seems now, in 1918, that the deep-sea tonnage under the American flag will quite certainly exceed 5,000,000 tons gross in 1919, and that it may rise to 8,000,000 or 10,000,000 tons gross in 1920. Should the war continue beyond 1920, as seems probable, we may look forward to a continued increase in the tonnage under the American flag. Should these predictions be realized, the tonnage under the American flag will eventually be not appreciably less than that under the British flag.

To create this vast tonnage in three years, scores of shipyards have been established and the yards that were in existence be-

fore the United States entered the war have been increased in capacity and in speed of output. To defeat the attempts of piratical U-boats to destroy the world's shipping and to cripple the transportation facilities indispensable to the successful conduct of maritime operations by the United States and the Allies, the people of the United States are devoting their capital and their energy to the erection of shipyards and to the construction of vessels. The country has been slow in starting this great work, and humiliating delays have occurred, but at last the great forces of the Nation are being applied effectively to the creation of a great merchant marine. The longer the war lasts the greater will be the tonnage of merchant shipping under the flag of the United States.

A Seafaring Bent.—When we look beyond the period of the war we must be mindful of certain obstinate facts, one of which is that permanent success upon the sea requires more than the initial possession of a large tonnage of ships. We can unquestionably create and man the vessels as a military necessity and operate them successfully when competition with other maritime nations is absent and when men devote themselves to shipping for patriotic as well as for economic reasons; but after peace has been restored and men feel free to devote themselves to pursuits for which they have greater aptitude and toward which they are more disposed by temperament and training, it may be difficult economically and successfully to man the vast fleet of merchant ships that will fly the American flag. The United States Shipping Board has already taken measures intended to prepare and dispose men to follow the sea.

During the first half of the nineteenth century and through the two preceding centuries there was no question as to the zeal and skill of the American people in the operation of vessels; but during the second half of the nineteenth century it was apparent that the British, Norwegians, Dutch, and men of other nations were showing greater success in maritime pursuits than the American people. The causes of the trouble were not psychological but economic. The trouble presumably was in the economic situation and not in the nature of men. The fact remains, however, that the people of other nations put forth greater efforts and obtained more successful results in ocean transportation than

the people of the United States. It will not do to forget or ignore the experience of the fifty years preceding the present war, and in planning for the future of American shipping we should resolutely set about to prepare ourselves for a better showing on the sea than we have made during the last half century. There must be developed in the people of the United States, at least in a goodly percentage of them, a seafaring bent such as the people of New England had in the colonial period and for three-quarters of a century after the National Government was established. If this seafaring bent can be given to the people of the United States, capital and men will seek the sea just as the money and men of England, Norway, and other European countries take kindly to maritime industries and pursuits.

The Relation of Shipping to Our Post Bellum Commerce.—The problems just stated are much in the minds of the people of the United States at the present time, and not for reasons that are altogether selfish. It is the hope of every patriotic man that the United States may succeed in a material sense and that its economic activities may be profitable; but this hope is, I believe, inspired partly and increasingly by the conviction that the success of the United States, like that of England, France, and other right-minded countries, will mean the strengthening of the forces which bring nations together in harmonious relationship and unite their efforts for the firm establishment of the ideals which underlie a civilization that makes for human welfare. If the United States is a country of high ideals the wider its future international intercourse, the farther its trade extends, the greater will be its influence for good and the more assistance it can give to the other nations with like ideals in advancing the well-being of the world.

It is impossible to consider the future of American shipping without discussing it in relation to the future of American commerce. Ships are a trade facility, and the demand for ships under the American flag must, in the long run, depend upon the extent of the international trade of the American people. The effects of the war upon the commerce of the United States, while not so revolutionary as upon shipping, have been phenomenal. The war has temporarily stopped a large part of the normal foreign trade of all the countries of the world, including the United States.

Some countries are excluded from foreign trade by sea, while practically all nations are obliged to limit international exchanges to restricted lists of articles. The production of many articles is entirely suspended, and the output of many others has been restricted in order that foodstuffs, munitions, and military supplies may be produced and manufactured in increased quantities for consumption at home and for shipment abroad. Industry and international trade are being temporarily forced out of their natural lines, and this diversion will continue at an increasing rate until the war is won.

The Effect of the War on Trade.—The effect of the devotion of industry and trade to the business of war has been to give to the United States, which is situated outside the theater of real warfare, a much larger place than it formerly had in the trade of Central and South America and a somewhat greater share than it formerly possessed of the commerce of Asia and Africa. The trade of the United States with these continents as well as with Europe is, however, limited both by inadequate shipping facilities and by the necessity of restricting international exchanges to the commodities that are essential to the industries connected with providing the means of fighting the war. As shipping facilities increase with the progress of the war, the foreign trade of the United States may be expected to exceed even the present large figures, but the range of articles exchanged must necessarily be limited with increasing rigor to those which are needed by the war industries.

It is quite certain that the United States at the end of the war will have a foreign commerce of far greater volume than its international trade in the past; and it is also probable that the United States, when the war is over, will be less crippled financially than the European countries which are involved in the great struggle. Under these conditions the United States ought to be able successfully to compete with other countries in maintaining and developing foreign trade. It is, however, well to be frank with ourselves and to recognize the fact that the people of the United States have not shown exceptional ability in foreign trade during the past fifty years. As compared with the results attained by several other countries, the showing made by the United States in foreign commerce has not been flattering to na-

tional pride. Foreign trade has not been taken very seriously by the American people as a whole. Indeed, it has not been necessary for them to take it seriously. With a country of continental proportions, rich internal resources to develop, and abundant opportunities within the country for the investment of capital and for the application of labor to industry, the people of the United States have not had a strong incentive to develop foreign trade and to build up ocean shipping, such as has stimulated the people of England, Denmark, Holland, and Norway.

Will the incentive be present in the future? Probably it will. Economic conditions in the United States after the war will tend to create a keen and widespread interest in foreign trade. The war has keyed up production in many lines and has aroused productive energy to unwonted effort. There will be a large surplus output seeking foreign outlet, and for a while at least there will be a strong foreign demand. To the extent of their ability to purchase upon credit European countries will be eager to secure the materials and machinery needed for reestablishing their industries and for repairing the waste of war. This period of exceptional foreign demand will be temporary, but it will at least help tide over the inevitable economic readjustment that must be made in the United States, as in other countries, when the industries turn from the support of war to the conduct of normal business enterprises. The United States will quite certainly have a large foreign trade for a limited period after the war; and it is probable that the increase in the scope and volume of the country's foreign commerce will be permanent.

Direct Trade and Short Routes.—The large merchant marine which the people of the United States are certain to possess at the end of the war will be of great assistance to the country in holding and developing its foreign commerce. Ships are the tools of trade, and their possession in abundance makes trade development easier and far more certain. This will be particularly true as regards the commerce of the United States with South American countries. In times past the trade of the United States with the countries of South America has had only a meager development. It has been especially difficult for American producers and exporters to acquire a large place in the com-

merce of South America. The cause has been, by no means wholly but in large part, the lack of direct shipping facilities. European manufacturers and merchants have had far superior facilities for shipment to and from South America, and this has put a handicap upon the commerce between the United States and American lands to the south. In fact, a considerable share of the trade of the United States with South America, as well as with the Orient, has been carried on via London and even via Hamburg.

The war has made direct trading between the United States and the Orient necessary, and possibly it has created conditions which may prevent a return to the practice of trading via London and Hamburg. With a large tonnage of ships under the American flag, there ought to be no great difficulty in establishing and maintaining enough direct lines between the United States and South America to take care of the trade. Moreover, American banks seem to be successfully handling international exchanges; and, while we cannot be very certain as to what will happen to these international banking arrangements when the war is over, it may possibly not be necessary to any considerable extent to arrange credits or settle accounts between the United States and South America by employing the services of European banks.

Interest in Maritime Affairs Needed.—The one thing needed to insure to the people of the United States future success in foreign trade and in ocean shipping is the creation of a keen interest in maritime industries and pursuits. There must be a trading and seafaring bent. Will this be acquired? The fact that the people of the United States, at the end of the war, will have an extensive foreign commerce, a large merchant fleet, and a corresponding number of men who have experienced life at sea will tend to create in the public as a whole an attitude of mind favorable to shipping and foreign trade. It will tend to make of the United States a maritime nation with strong international interests. The psychological motives of maritime effort will, presumably, have been strengthened, and the country will be disposed to encourage shipping by favorable legislation and by other necessary means.

Wanted—A National Shipping Policy.—But this will not come about automatically and inevitably. There is need of formulating and following a definite national shipping policy. However cordial international relations may be in the future and however earnest may be the efforts to coöperate, there will be competition among friendly maritime nations for the carrying trade as well as for the foreign commerce of the world; and that competition will be keen even during the quarter century following the present war, while the memories of common sacrifice draw together the well-meaning nations of the world. The race for success in shipping and commerce will be won by those who make the most of their powers and their opportunities.

Without going into details concerning the legislation necessary to the formulation of a national shipping policy, it may be stated that existing laws should be so amended and future statutes so framed as not to restrict or avoidably to burden the acquisition, registration, and operation of vessels. Since the Civil War shipping legislation in the United States has, in a large measure, been subordinated to the policy of promoting the internal development of the country. It is only since the Spanish-American war that the country has again consciously thought of foreign trade as something in and of itself desirable, and it has only been during the past decade that the country has seemed consciously to realize that it was important to have a large merchant marine under the American flag. Whatever may have been the past views of the country regarding the necessity for ships, the present war has convinced everybody that the United States must, in the future, have a large merchant marine. Liberal shipping legislation will be far easier to enact in the future than it has been in the past.

The same may be said regarding laws concerning the shipbuilding industry. For commercial and naval reasons the country must take measures to continue in profitable existence the more important shipyards that are being constructed to meet temporary conditions created by the war. It is, of course, not to be expected, nor is it desirable, that all the shipyards established during the war shall be continued when peace is restored; but, having been built up suddenly to provide ships for the war, the shipyards in this country will meet with a disastrous crisis when

the war ends, unless measures are taken to ward off the catastrophe.

It is certain that the country will insist upon the maintenance of a large and technically progressive navy for as long a period after the war ends as it will be necessary to protect the country and to help safeguard the world against the recurrence of an attempt upon the part of any ruthless and lawless power to overrun defenseless nations. The maintenance of a large navy will be of great help to the shipbuilding industries of the United States and indirectly to the maritime industries and international trade of the country.

To help solve the problem of providing the personnel for the navy and for the merchant marine, training should be provided for officers and seamen and the other classes of men required upon ships. The United States Shipping Board, the Department of Commerce, the large universities, the trade schools throughout the country, elementary as well as secondary, must provide definite training of men for the sea. The technical schools must add to their studies in engineering and industry courses having to do with seafaring pursuits. It should be the conscious purpose and the continuous effort of the country to prepare a large body of men for effective management of naval and merchant vessels. What the Shipping Board is now doing to train men for its rapidly growing fleet, built to meet the needs created by the war, shows how men can be prepared for the merchant marine. The education of men for the sea must not stop with the war.

Private Encouragement of Shipping.—Business men have a duty and an opportunity to render the country a great service. Bankers, manufacturers, exporters, importers, and insurance men, through their several organizations, should seek constantly to further measures that will strengthen the shipping interests of the country. Success in manufacturing enterprises and trade depends so largely upon success in ocean shipping that there are ample reasons why the organizations of different classes of business men should actively interest themselves in shipping questions.

Shipowners should especially be encouraged to organize the service of ocean transportation in the most economical and efficient manner. By the shipping act of September 7, 1916, conferences and traffic agreements of ocean carriers, under Government super-

vision, are permitted. Previously they had been under the ban of the law in this country. Presumably shipowners will make full use of their opportunity to develop their business by organized effort, and in doing so they will doubtless receive the support of public sentiment.

All departments of the Government having to do with merchant shipping and also the navy and the various kinds of schools that train men for the sea should provide aquatic sports and arrange contests by which the men may show their skill and proficiency and may acquire an enthusiasm for life on ships and at sea. These efforts can possibly be strengthened and greatly assisted by shipowners' organizations. Owners of vessels are the most directly interested in securing an adequate number of trained, enthusiastic men, and they may well make a point of trying to create an esprit de corps on the part of the men who are in or are training for the merchant marine or the navy.

Private Enterprise and Government Function.—In developing a national shipping policy Government regulation is not to be discarded or neglected. The business of ocean transportation should be wisely regulated with a view to preventing abuses and to maintaining fair treatment as among shippers and localities. This regulation, however, should be constructive as well as corrective in aim and purpose. The United States Shipping Board should be a strong and helpful agency after the war, as it is now. Eventually its relations to the shipping industry will be as vital as the relation of the Interstate Commerce Commission to railroad transportation.

For the period of the war it will be necessary for the Government to engage extensively in the construction of ships. It is also necessary for the Government to control shipping and to operate a large number of vessels. As a war measure the Government's participation in the shipping business is not only desirable but essential. Whether it is wise for the Government to engage in the construction and operation of vessels in times of peace is questionable. It may possibly have been justifiable for the United States to provide for the Government construction of ships before the country entered upon the present war. At the time of the enactment of the present shipping act the American merchant marine in the foreign trade was at low ebb; there

was urgent need for a larger tonnage; and Congress thought it wise to authorize the Government to construct, acquire, and operate vessels.

In the long run, however, the maritime success of any country must come from private initiative and not from Government activity. Indeed, the shipping act provides for the retirement of the United States from the shipping industry within five years after the close of the war. This principle should be adhered to, and the permanent policy adopted by the American people for the development of shipping should aim to make the business profitable to private capital and attractive to the great body of ambitious young men who are seeking a business to which they may devote their best efforts and in which they may achieve success in friendly rivalry with other men of affairs. The Government should regulate but not supplant private business in the shipping industry.

XIV

THE FREE PORT AS AN INSTRUMENT OF WORLD TRADE

By EDWIN J. CLAPP ¹

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Report of the New York and New Jersey Port and
Harbor Development Commission*

Free Port Is Not Free Trade.—In considering the “free port” it is necessary first to disabuse the mind of the idea that the institution has anything to do with the policies of protection or free trade. If there were twenty free ports in the United States, it could still retain its protective-tariff policy. But the higher our protective tariff the more desirable are free ports if we wish to engage heavily in foreign trade and become a market for the raw materials of the world. England needs no free port or free zones, because she is a free-trade country and her regular ports have the characteristics which, in a protective-tariff country like the United States or Germany, must be imparted by the establishment of free ports.

Definition and Advantages of Free Ports.—A free port is a free-trade island within a country that maintains a customs tariff. If a free-port area were installed in the port district of New York, Boston, or San Francisco, the free port would be considered, by the United States customs authorities, as foreign territory. Goods coming in from foreign countries would enter the free port without the details of custom-house inspection. If such goods were transshipped or reexported to a foreign coun-

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try, the United States customs officials would never know of them. Goods thus kept within the free port could be mixed, repacked, blended, or branded, without any customs interference, for in the meaning of the tariff law they would not be within the United States. Within the free-port area factories could be located to manufacture imported raw materials, otherwise dutiable, and export the product without being subject to the difficulties and delays of collecting "drawbacks" or refunded duties from the United States Government. But just as soon as any goods go inland to any point in the United States from the free-port area they become subject to the regular duties, whether on raw materials or on finished products.

It will be seen at once that the free port is interesting from several points of view. It permits the rapid handling of ships in port, without the delays and harassments inevitably connected with the supervision of the Customs Department. Further, it gives the greatest possible freedom for the handling, mixing, and repacking of goods which are consigned to the free port but whose destination, whether inland or foreign, has not yet been determined. It also greatly facilitates the business of transshipment and reexportation. Finally, it provides ideal locations for industrial establishments working with imported raw materials that are normally subject to duty. The essence of the free port's advantage is the legal fiction of its foreign location, the fact that it is a free-trade island in a sea of protectionism. As Frederick Howe says, "It is an unobstructed counter across which goods can be exchanged and transshipped to other countries."

A Free Port Described.—The idea of the free port is best understood if we describe one. The agitation for free ports in the United States originated about the year 1911, after we "discovered" the free port of Hamburg, which had been in existence since 1882. Most of the proposals for an American free port are based upon that institution at the port of Hamburg. The advantages that we hope to gain are those which have already been exemplified in this German port. Therefore it is worth while to tell, briefly, what the free port of Hamburg is. Opposite is reproduced a map of Hamburg, with a red line showing the great portions of the harbor included within the free-port district.

When in 1871 the German Empire and the German Customs Union were consolidated, Hamburg and Bremen entered the Empire only upon condition that they should remain outside of the Customs Union. That was because the Hansa cities in those days were more interested in transshipment and reëxportation business with the Baltic than in business with the German hinterland itself. Hamburg did not want to enter the Customs Union in such a way as to hamper it in dealing with its best customers. But in the course of the next ten years the German hinterland developed enormously, particularly in the iron and textile industries. For traffic from these industries Hamburg was dependent upon the Prussian State Railways, whose tariffs, Bismarck intimated, would not be favorable to Hamburg if she kept out of the Customs Union any longer. So Hamburg joined it in 1882, making what subsequently proved a good bargain with the Empire.

The State of Hamburg, practically identical with the city of Hamburg, with 275,000 inhabitants, entered the Customs Union. Its harbor proper was to remain outside the Union and was to be rebuilt and isolated from the rest of the city. The Empire agreed to contribute 40,000,000 marks toward the construction of this free port. The remaining cost—about 150,000,000 marks—has been borne by Hamburg.

At this time the port of Hamburg consisted mainly of two great basins, the Sandtorhafen and the Grasbrookhafen, built into a peninsula on the right (cityward) bank of the main Elbe stream. The whole peninsula, as well as the island of Kehr-wieder, between it and the city, was preëmpted as the free port. As no one was allowed to live there, 1,000 property owners were expropriated and 24,000 people were evicted. In this right-bank peninsula one more large basin was constructed. Twelve hundred acres of marsh land were purchased on the left bank of the river, and a great succession of new basins erected there.

Equipment of Hamburg Free Port.—The free port consists of a large number of basins, lined by quay walls, alongside which steamers can lie and be discharged by cranes into freight sheds, amply supplied with railroad connections. In the wide basins mooring posts provide anchorage for ships handling cargo in the stream. There are warehouses directly on the water side. Be-

tween the various left-bank basins are located shipyards and numerous exporting industries. The whole free port, therefore, considered by the Customs Department as foreign territory, includes land on either bank of the Elbe and the main river itself for a considerable distance. It is surrounded by a customs line, which is guarded by customs officials. On land the line is designated by high iron palisades; along the river it is a floating palisade; where it crosses the river it is an imaginary line guarded at either end by customs men. At the land and water limits of the free port are provided customs booths, where goods must pay duty when they enter the Empire.

Reexportation Facilitated. The first advantage of the Hamburg free port is in facilitating reexportation; indeed, the importance of the reexportation trade is what, before all else, led to its creation. Merchandise can be brought free of duty into the free port, stored in its warehouses, repacked or mixed, and then, as conditions of the market dictate, sent across the customs line into Germany or shipped to Scandinavia and the Baltic. In the free port foreign merchants can maintain sample and consignment stocks. Bonded warehouses do not offer the same opportunity for unhindered movement of merchandise in a port; everything must be done under the annoying control of customs men. In Hamburg there is no need of counting and verifying pieces when a reexportation is made. A bonded warehouse cannot offer the same facilities for various manipulations necessary to prepare goods for the consumer, such as cutting wines and mixing coffees.

Export Industries in Free Port.—The privilege of manufacturing in its free port, which Hamburg alone of all German ports possesses, is one that has proved of less benefit than was expected. Its advantage is of course that it allows exporting and outfitting industries to get their foreign raw material duty-free. This advantage has been partly overcome by the system of drawbacks since introduced and applied to the manufactures in the Customs Union. The disadvantage under which all industries in the free port labor is that, if they wish to sell in Germany, they have to pay on their products crossing the customs line the high duty on manufactured articles, while their inland competitors have had to pay only a low duty on the corresponding raw

materials. This disadvantage has become more pronounced as the home market has come to preponderate over the foreign. And yet there is a large demand for manufacturing space within the free port. When, a few years ago, a new area was to be added to the district, there were one hundred applications for manufacturing sites. In normal times about fifteen thousand men are employed in shipyards in the free port, and approximately five thousand in other industries. The chief types of industry are those catering to the building, outfitting, and provisioning of ships, such as shipyards, boiler shops, machine and repair shops, and biscuit factories. Or they represent industries largely interested in exporting, such as rice mills and oil mills.

Rapid Handling of Ships.—But perhaps the chief advantage of the free port lies in the opportunities it offers for the rapid, frictionless discharging of ships with dutiable goods, whether destined for reëxportation or for shipment inland. As Hamburg lies eighty-five miles from the sea, precautions must be taken to prevent goods from being landed on the way up. The Hamburg pilot, who must be taken aboard when the vessel enters the Elbe, is an official customs inspector. Under his guidance the vessel comes up the river at any hour of the day or night and passes to her berth in the free port, unmolested by customs officers. There are no summary or detailed declarations of dutiable goods to be made, no customs officers to be taken on board, with the explanations and delay incident to their presence. The ship discharges by day or night, with no official limitation on her hours. When she is ready her inspector-pilot takes her out to sea; no officer of the customs has been near her. The procedure offers the least conceivable hindrance to the free movement of a ship.

The Effect on Trade.—The trade statistics of the German Empire for Hamburg are such that it is not possible to tell how much of Hamburg's trade consists of reëxportation. The best estimates are that 20 per cent of her exports are reëxports. In the last peace year, 1913, Hamburg exported goods of a value of \$1,000,000,000. Her reëxportation, therefore, amounted to approximately \$200,000,000. This is a very large sum and indicates a tremendous growth in the preceding decade. It is an

advance made in the face of the very formidable trade monopoly which has been London's prerogative.

Copenhagen also has a free port. It was built by a private company in the early nineties. In the last ten years the growth of traffic in the Copenhagen free-port district has been 100 per cent; the growth in the remaining portions of the Copenhagen harbor has been 4 per cent. This relative increase is an interesting commentary on the attraction which the free port exercises upon trade.

The British Problem.—In England, as we have already seen, there is no demand for free ports, because the whole country is a free-trade country. However, there is a strong possibility that when the war is over there will be a British tariff operating against outside nations, with preference, perhaps free trade, for the Dominions. Already British experts are pointing out that, if this comes to pass, Great Britain will need a free-port district like that of Hamburg if she is to retain her ancient supremacy as the emporium of the world's trade.

London Consignment Market.—Not many people have a real conception of London as a focal and distributing point for the world's trade. The foundation for this magnificent position is the London consignment market. Raw materials from all over the world can be shipped, unsold, to London. Its merchants receive these consignments of rubber, Egyptian cotton, wool, ivory, mahogany, jute, hemp, sugar, coffee, and a hundred other commodities. They credit the shipper with, say, 80 per cent of the present value of his produce and hand him the balance when the sale is made. For financing these transactions they borrow money from the London banks.

Other nations then turn to buy rubber, cotton, wool, coffee, and ivory in the London market. The London merchants and consignors can guarantee the quality of the goods sold. Sometimes the buyer prefers to purchase from a London merchant giving this guarantee, rather than from an irresponsible or unknown seller in the land where the goods originated. Whoever buys from London is sure of rapid delivery and cheap freight rates. He is sure of rapid delivery because of the network of ocean services radiating from England. He is sure of cheap freight rates:

all outward freights from England are low because there is more tonnage inbound to England (foodstuffs and raw materials) than outbound, and the steamship lines give low outward rates to attract cargo for their empty space.

Advantages to British Trade and Industry.—The existence of this reëxport trade then reacts to the advantage of Great Britain's overseas lines. Because Great Britain imports freight not only for herself but for all other countries, she can afford more frequent and extensive sailings to and from the lands that produce raw materials. Because Great Britain reëxports raw materials to and from industrial lands like the United States and Germany, she can maintain to them more frequent ocean service than if she handled only goods and materials originating in England itself. England uses most of the consigned material in her own factories, but she resells over half a billion dollars' worth of it annually to foreign manufacturers who go to London to buy because they are certain that they can obtain supplies there and because the London market affords facilities for economical trading.

Those raw material markets in England give the British manufacturer the first choice of the world's products, delivered right at his door, at an average cost lower than they could be bought for anywhere else on earth. Because of the constant supply of these raw products, of all grades, the manufacturer can buy them at any time, in any quantities he chooses. He can buy them by inspection, not by sample or description. The presence of these enormous stocks continually at hand is a stimulus to the creation of ever new British export industries. Naturally, the existence of raw-material markets in England gives her control over raw-material prices.

Our Dependence on British Reëxports.—The United States has become the greatest manufacturing nation in the world, and yet we have been largely dependent upon the British middleman for many industrial materials that we need. According to the British figures we bought in 1913, the last peace year, \$288,000,000 worth of goods from England. Of these goods more than half, \$147,000,000 worth, were products of other countries than England, but they were bought by us in England, shipped through English ports, in English bottoms, and dealt in by British mer-

chants, and the trade was financed by British banks. In 1916, out of our \$314,000,000 purchases in England, \$155,000,000 represented reexported products of all the world except England. Our dependence is increasing: during the first six months of 1917 we bought \$141,000,000 worth of goods from England, and of those goods \$104,000,000 worth, nearly 75 per cent, had originated in other countries than England. In 1916 we bought \$30,000,000 worth of cotton from England. That was mostly Egyptian cotton. In 1913 we bought over \$700,000 worth of Philippine hemp from England. From London we bought \$4,400,000 worth of East Indian jute and \$10,000,000 worth of wool that had come from Australia, South Africa, and Argentina. Though we are the greatest users of raw rubber among the nations, in 1916 we bought \$40,000,000 worth of Congo, Brazilian, and Straits rubber from England. We are the greatest consumers of tin, but in 1913 we imported \$25,000,000 worth of non-British block tin from Great Britain.

Our Small Reexports.—In 1913, her last peace year, Great Britain sold abroad \$532,500,000 worth of other countries' products, in addition to \$2,550,000,000 worth of her own products. Her reexports were one-fifth as large as the exports of her own products. In the year ending June 30, 1914, our last peace year, we exported domestic goods valued at \$2,365,000,000. Our reexports (called in our statistics "foreign exports") amounted to \$34,900,000. To give a fair picture of the situation, we must add to these American "foreign export" figures a certain proportion of our "in transit and transshipment trade." In 1914 this amounted to \$198,000,000. Of that sum \$156,000,000 represented goods moving to or from Canada by rail. The balance, or \$32,000,000, represents the true transshipment trade. Adding this to our \$35,000,000 of "foreign exports," we have a total of \$67,000,000 transshipment and reexport trade. So our reexports were 1/36 of our domestic exports. England's reexports were one-fifth of her domestic exports.

Nor is the situation improving. So far as figures show, we are not becoming, in any perceptible degree, a mart and distributing center of the world's products. From 1914 to 1917 (fiscal years) our foreign exports increased from \$35,000,000 to \$63,000,000, showing an increase absolutely but a decrease rela-

tive to domestic exports. We have no figures of the "in transit and transshipment" trade since 1915, but from 1914 to 1915 the volume of this business dropped from \$198,000,000 to \$142,000,000. Another index of our increasing tendency (if it existed) to become a world's market would be an increasing volume of imports held in bonded warehouses. This volume of such warehouse holdings on June 30, 1914, amounted to \$82,000,000. On June 30, 1917, the volume had sunk to \$68,000,000, though there had been an enormous increase in prices in the meantime.

While there is no striking advance to record in the figures indicating our activity as a distributing center of the world's trade, our domestic exports increased from \$2,365,000,000 in the fiscal year 1914 to \$6,294,000,000 in the fiscal year 1917. Domestic exports tripled. In other words, while we may have been seizing the opportunity to increase our domestic exports, we have not been making any attempt to become another of the world's trading centers. The extent to which England has maintained her preëminence in that direction is indicated by the figures already given. We may be sure that when the war is over Hamburg, and in fact all Germany, will put forth most intense efforts to resume the commercial march of the pre-war period.

The Free Port and the Consignment Market in the United States.—Free ports in the United States would be valuable in aiding us to get hold of this business, which, as yet, we have seemed unable to touch. First of all, there should be a free port in New York, which handles about half the exports and imports of the whole country. In 1912—no later figures are available—New York did one-third of the transit and transshipment trade of the United States. In that year New York paid in drawbacks over half the total paid in the country. New York did 60 per cent of the American bonded warehouse business. How would a free port work in New York? The following pages deal mainly with the idea of a New York free port, but the same principles apply to other ports.

Free Port vs. Bonded Warehouse.—There are those who insist that we need no free port, and that all the advantages that would accrue with the establishment of a free port are now offered by our bonded warehousing system. Let us consider a

single item, tobacco, the largest individual article of import carried in bonded warehouses. New York bonded warehouses afford no proper place to store imported tobacco for reëxport. For example, South American tobacco is badly packed. Before being reëxported it must be cleaned. But the merchant is not allowed to manipulate it in bond; he is not allowed even to alter the package. If it is kept in bond and not cleaned, it spoils, just like an apple beginning to rot. A merchant cannot keep an unsound package. If he clears the South American tobacco—that is, if he takes the tobacco from the bonded warehouse and pays duty on it—cleans, repacks, and exports it, he pays duty upon its gross weight and gets a duty drawback upon its net weight. On the contrary, the German merchant imports tobacco from Argentina, cleans and repacks it in the free port, and sends it back to Argentina itself. During all the process he never hears of the customs restrictions.

Disadvantages of Bonded Warehouses.—Moreover, there is a rule that all goods must be removed from bonded warehouses within three years after they have arrived there. That is, within three years they must be cleared or reëxported. But tobacco men claim that three years is too short a time for curing certain types of tobacco. Finally, there is an inevitable shrinkage in tobacco left to cure in a bonded warehouse. The merchant is responsible for duty on the entire weight of the tobacco that enters the warehouse, no matter how much comes out. This difficulty as well as the three-year limitation does not apply to a free-port warehouse.

At the Tariff Commission's New York hearing on the free port, Mr. Reis, an importer of laces, embroideries, curtains, and handkerchiefs made in Switzerland, told of his difficulties in attempting to import his products into New York and reëxport them to the West Indies and South America, after the war had cut off direct exports to those destinations from Switzerland.

"Many of our direct exports were cut off by the war. We tried to do our exporting through New York, as a good many lines were discontinued, and many of them lying here in bond, many of which we would have liked to dispose of. We had a good many cases where we could have disposed of

our merchandise in bulk, but unfortunately we found the goods were not packed in the proper way. The duty on our merchandise in most cases to South and Central America is based on gross weight. The goods (lying in New York) are packed in heavy boxes, with heavy packing, which is one of the reasons why we could not dispose of our goods as we would have liked. We tried to get permission from the Customs House to repack the goods, even under the supervision of the customs authorities, but the Customs House regulations did not permit the change of any package which goes into the Customs House or the rebaling or repacking of the goods in any way.

"Many of our customers would request part shipments of the merchandise, which was out of the question. We have, therefore, been compelled to ship these goods from New York to the British West Indies. There we have the goods repacked, and shipped thence to South and Central America, with the permission of the (British) Customs House."

The bonded warehouse seems an excellent device for driving our trade into foreign hands.

The Free Port Warehouse.—In a free-port warehouse, in contrast with this procedure, the merchant has space where he can repack, re-mark, blend, or assemble his goods. Along with storage room, he can have facilities for a showroom and ware-room there. Philip Kennedy, who in 1913 investigated European free ports for the Merchants' Association of New York, gives interesting details about the free port of Hamburg. He tells of an American firm renting space in a free-port warehouse where it put Elgin watch movements into Keystone cases, packed and labeled shipments, all in a single room. Another firm, next door, brought in Panama hats and fitted them out with hatbands. The showroom, sales headquarters, assembling room, and shipping department were all together. Kennedy tells of concerns that located their European distributing headquarters in the Hamburg free port, rather than at Rotterdam, Antwerp, or any other competing center, because of the Hamburg facilities. The Hudson Motor Car Company, for example, asked for the privilege of setting up their machines in the Royal Bonded Warehouse at

Antwerp and using the space as sales headquarters. They were told that nothing of this sort was possible. The need of assembling space is important, in that it saves on freight rates. Rates on goods "knocked down" are lower than on goods "set up." They can be shipped "knocked down," whenever possible, and assembled in free-port warehouses at destination.

As for the value of being able to mix goods and create special brands, in the free-port district a Hamburg merchant once trenchantly said, "It is not so simple to make Javan from Brazilian coffee, when the Javan crop is short!"

With the procedure in bonded warehouses as clumsy and unhandy as it is to-day, it is imprudent for the domestic merchant to entrust his goods to their care. How much more so is it for the foreign merchant, unable himself to deal with these customs complications and compelled to depute such dealings to alien agents?

Free Port District for Industries.—The next advantage claimed for a free-port area is that it would stimulate the growth of export industries manufacturing imported raw materials subject to duty. At the present time industries manufacturing such materials can, upon exportation of the product and upon presentation of the necessary evidence, recover 99 per cent of the import duty paid. As a matter of fact, the procedure is so complicated that there is a loss of not merely 1 per cent but, on the average, between 5 and 10 per cent of the duty paid, as it is necessary to hire experts to prepare the necessary papers, make the required proofs and claims, and collect the drawbacks. Moreover, the law requires that drawback payments be not made until 30 days after the claim has been approved. The Government moves so slowly that payments are frequently not made until long after the 30-day period is up. One Philadelphia merchant testifying at the hearings of the Tariff Commission at Philadelphia in January, 1918, stated that he was still engaged in collecting drawbacks on exports of 1916. Even with the best administration of the customs, the drawback procedure ties up considerable sums of capital. We shall probably face higher duties after the war, and in that case still more money will be unprofitably locked up in duties, pending drawbacks.

More money is often thus tied up than would be inevitable

under the 30-day repayment rule of the Treasury Department. For example, an importer of tin must have large quantities of it on hand, in order to keep his plant running. He must keep more than his immediate necessities, in order to provide for the uncertainty of idle vessels. During this time the duty that he has paid on this tin is a loss to him.

Difficulties of Drawback System.—Often the United States produces an article identical with a dutiable import used in manufacturing—for example, sugar. It is often difficult for a candy manufacturer or a fruit preserver in applying for his drawback to demonstrate just how many barrels of imported and how many of domestic sugar he used. Exporters of women's clothing have a hard time proving the foreign origin of items of lace that are included. In many cases the proof required is so difficult that it is abandoned, and no attempt at collecting drawbacks is made. Some of these manufacturers insist that the Customs Department looks upon them as a set of robbers and treats them accordingly. Such an attitude is perhaps explainable, but it does not stimulate export industries.

Industries located within a free port would of course have no such difficulties. No attention would be paid to them by the customs authorities until they came to send their products into the interior, when they would be under a disadvantage in comparison with the inland manufacturer. It is doubtful whether any industry not manufacturing exclusively for export would thus locate in the free-port zone. Possibly certain large industries, like the American Sugar Refining Company, would concentrate their export business there.

The manufacture of cigars in bond, made from imported tobacco, as at Tampa, is not a real example of what would go on in a free port. As a matter of fact, those Tampa cigars are not made for export. They are intended for consumption in the United States and are manufactured in bond in order to get the "in bond" stamp on them so as to sell as pure Havana material. If we could import cheap South American and Sumatra tobacco into a free port, with the freedom from bonded-warehouse restrictions that has already been described, it is not impossible that with our labor-saving machinery and our ingenuity we might be able to get a share of the international cigar business. At the

present time there is a machine that makes a perfect cigar in which we could use a domestic binder and a foreign filler.

We do a comparatively small volume of business in exporting goods made of imported dutiable raw materials. For example, in 1915 the United States Government paid to manufacturers of such goods \$7,339,236 in drawbacks. That year the average customs duties on dutiable imports into the United States amounted to 36.7 per cent, indicating that the value of the exported raw materials used in manufactured exports during that year was approximately \$20,000,000.

Free Port and Better Handling of Ships.—It is claimed, and probably with justice, that ships docking at a free port could be turned around more quickly than at their present piers. In the first place, it is likely that the free port would consist of a new port unit, a thoroughly modern installation of piers, freight-handling machinery, railroad tracks, and assembly yards, and advantageous connection by belt line and lighter with distributing railroads and coastwise and barge lines. The very modernity of the equipment would shorten the time of discharge in any American port. For example, at Hamburg 10,000 tons of miscellaneous cargo is unloaded in 40 hours, and the ship is reloaded in 30 to 40 hours more—that is, at a rate of discharge of 250 tons per hour, which is said to be a regular thing at the new Kuhwaerder piers in the Hamburg free port. Three or four days to discharge such a cargo in any American port would be record time. This saving in the time of handling, to be sure, would be the result not of any peculiarity of the free port, but of the modern equipment, which, of course, might be duplicated elsewhere.

There are other difficulties connected with the customs supervision of ships in ports which would be remedied in a free port. For example, in the port of New York at the present time a preliminary permit must be obtained before a ship can dock and discharge its cargo. Otherwise twenty-four hours must ensue from the time of obtaining the regular permit to the time of discharging the cargo. That works better with those shipowners who understand the formality than with those who do not. At the New York hearing of the Tariff Commission John F. Strauss, member of the Custom House Bar Association, explained some of the troubles which the New York authorities can cause to a

shipowner who desires to get his vessel in and out rapidly. He spoke of the antiquated system of issuing permits, citing the fact that no permit issued by the collector becomes valid unless it is countersigned by a naval officer, and that there is a conflict between the jurisdiction of a great number of independent officers, such as surveyors, naval officers, and appraisers, and that of the collector.

Customs Cause Pier Delays.—In New York many dutiable goods must be weighed upon the piers. After they are unloaded it is frequently necessary to wait from two to four days for a permit to weigh goods, and the Customs House people are apparently not too zealous in promptly certifying as to the weighing. Mr. Guilford said at the New York hearing of the Tariff Commission:

“Here we have to wait forty-eight to ninety-six hours for a permit to weigh the goods, and they are not signed by these people after weighing. The permits are simply thrown around and not delivered to the consignees.”

The delays caused by goods being left upon the piers, through the failure of the customs people to clear them promptly, result in a diminishing capacity of the piers to accommodate steamers. In New York, to-day, this is a particularly vital matter.

New York Chamber of Commerce on Free Ports.—The New York Chamber of Commerce in January, 1918, thus summarized the advantages which it thought that a free port would bring to New York:

(1) A free zone would facilitate the removal of imports from piers and from vessels, and thus relieve congestion so that ships would arrive and depart more quickly. For instance, the loss of time in weighing imports, in selecting one-tenth part for appraisers' stores, as is required in some cases, and in meeting the restrictions which may be imposed on transfer of imports from vessels by lighter would all be eliminated on goods landed at the free zone. When a ship ties up in a free port it is possible to unload the cargo without customs inspection.

(2) A free zone would make it possible to avoid the complications of bonding and drawbacks in the case of re-exported goods. Under the present system, for instance, where imported goods are merely repacked in this country the importer goes through the elaborate details of paying duties and then is subjected to further red tape, expense, and loss in the process of getting the duties he has paid refunded in the shape of drawbacks.

(3) The free zone would give the owner at all times control of his merchandise, which is an important advantage over the bonded-warehouse system. The owner has free access to his goods at all times. Machinery may be assembled here. Manufacturing may be carried on, where domestic and foreign materials are combined, or otherwise. Showrooms may be equipped and goods sold to buyers therein. Goods may be imported in bulk, split up, reassorted, or mixed up with other goods, and prepared for shipment as demand may arise in this country or abroad.

(4) The free zone has financial advantages in that it would release capital now tied up by our customs regulations. Also the more rapid movement of ships and cargo makes a more rapid turnover possible and a corresponding decrease in capital requirements.

(5) The creation of a free zone involves the building of large, specialized terminals with all modern appliances for loading and unloading, transshipping, and warehousing, and, in some ports abroad, for light manufacturing. Furthermore, dry docks, repairing and shipbuilding facilities are provided. This all cuts down materially terminal costs, which usually constitute about 60 per cent of the cost of ocean transportation.

(6) The establishment of free ports in this country will materially assist the United States to meet in foreign markets the competition for trade from such free ports in Europe and will be a great aid to our foreign and shipping trades in the struggle for international business at the close of the war.

Economic Changes Favoring Free Ports.—The main argument for a free port in New York is that it would give the city a

mechanism enabling it to become a world consignment market, such as Hamburg and London represent. Certain changes in our economic life, already accomplished or in prospect, give us hope that America may become a center of world trade. The amendments to the Federal Reserve Act put our banks as never before in the position of financing export and import trade. When the war is over our Government will be the largest single shipowner in the world. It should operate a network of services from the United States to foreign destinations, equal if not superior to the steamship service maintained by any other country.

World Trade Already Coming Here.—Certain classes of world trade in "colonial products" have already shown signs of life in America. For example, we are importing 10 per cent of the 1918 Sumatra tobacco crop, 30,000 bales. Normally this tobacco goes to the Amsterdam market, for purchase, and is then transported here. The same people who bought this tobacco for American distribution have not bought an extra quantity for distribution in South America because of the difficulty encountered in our bonded warehouses. Since the war broke out, and the international pelt and fur markets are no longer possible at Leipzig, where they used to center, we have had in America four great auctions, two a year, at which as many as 2,000,000 pelts have been offered in three or four days. St. Louis and New York have both introduced fur sales on a large scale. The fur dealers want a free port and claim that it would help them extend and perpetuate their international trade. Such was the plea of Joseph Ullmann, chairman of the Fur Board of Trade, at the New York hearings.

Imports of rice are now coming into San Francisco and going across the United States, to be transshipped at eastern or Gulf seaports to Cuban, Central American, and Caribbean ports. That transcontinental traffic has grown so large that consideration has been given to its stoppage, owing to the shortage in freight cars. There have been large shipments of Brazilian coffee from San Francisco to Vladivostok. Tea, imported in large quantities at New York, New Orleans, and San Francisco, has brought to those ports many buyers who were once accustomed to go to Europe. Tin has begun to move in increasing quantities from the Straits

Settlements directly to the United States, and so has pepper from the East Indies.

To hold and to extend our very recent gains in such importations, free ports would be of great advantage. Without them, and without the mercantile initiative which must accompany them, we may go back to our old methods of buying Brazilian coffee via Hamburg, Brazilian rubber via London, Argentine wool and hides via Antwerp, East Indian spices via Amsterdam, Australian wool via London, and African rubber and mahogany via Liverpool.

Revival of Transshipment in International Trade.—Finally, the opportunity for the creation of a great trade and transshipment center in New York may arise as a result of the smaller number of steamship routes that will be operated when this war is over. Even though the United States may have a larger share of the world's merchant tonnage than before the war, the total will be entirely inadequate to the world's commercial needs. The shortage of cargo space, in relation to the traffic that needs to be carried, will in all likelihood reduce the number of main ocean routes. Ports not at the termini of those main routes will have to trade by feeder lines transshipping at the termini. A free port, with its provision for rapid, frictionless transshipment of cargo and its ideal arrangement for holding and reexporting goods, should help make New York one of the great transshipment points.

For example, before the war Scandinavia had lines to the Far East. When the war is over, it is possible that neither ship tonnage nor trade movement will justify those lines. Scandinavia can trade with Japan and China by transshipping at Hamburg to the Hamburg-Far East Lines, or by transshipping at New York to the New York-Far East Lines. So with the Scandinavian-South American trade. Whether Hamburg or New York gets such business will depend on the sort of facilities each offers.

Transshipment and reexportation thrived a century ago. In proportion to the world's total volume of commerce, transshipment and reexportation were losing in relative importance before the war. Even the smaller nations had enough trade to justify direct lines overseas. Is not the war going to set us back, at least temporarily, into the transshipment and reexportation era? If

so, does not that development demand the establishment of free ports?

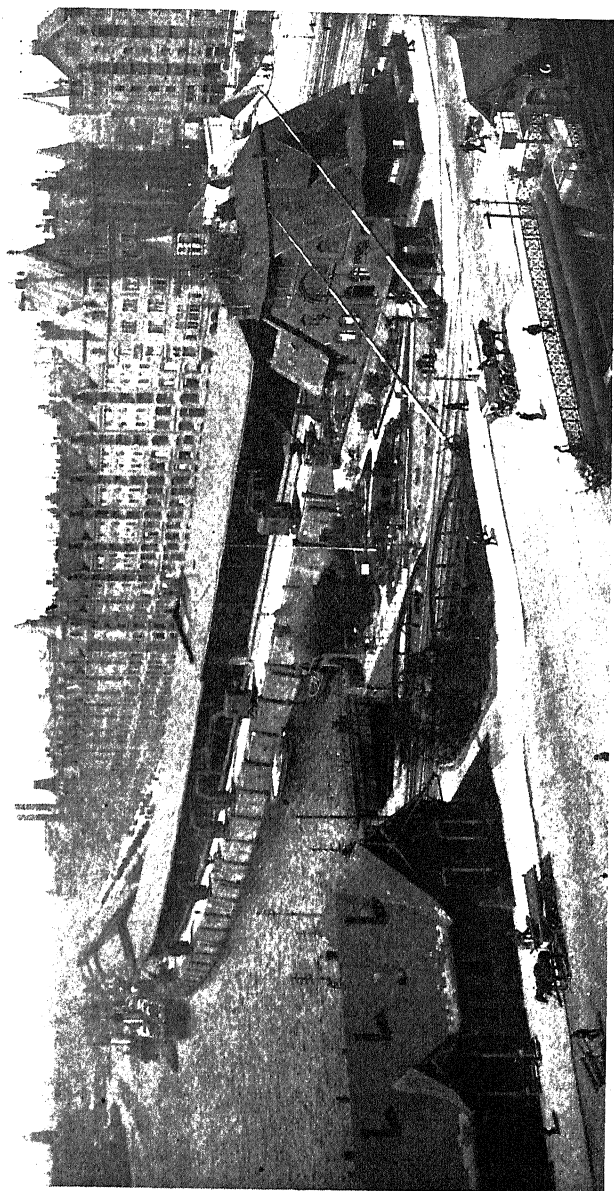
Cities Should Finance Free Ports.—There are certain definite things that should be kept in view in the plans for establishing a free port. They should not be established by Federal governmental expenditure. That method would easily result in a riot of "pork barrel" legislation, which would discredit the whole idea. Those commercial centers which have confidence in their ability to become centers of trade, transshipment, and reexportation should apply to the Secretary of the Treasury for permission to establish free-port districts. The total expenditure for such terminals—and they are merely terminals—should be made by the cities themselves, which could finance the new installations by dues or by taxes.

Possibly the Government can aid in the establishment of free-port areas by selling, to such cities as desire to purchase, the war base installations which the Government has put in at various ports about the country.

Some fear has been expressed that the old bonded warehouses in a port might suffer through the creation of new warehousing space in the free port. Such has not been the experience in Hamburg and Bremen. The old warehouses outside the free-port area either became open (not bonded) warehouses, or they succeeded in keeping full of bonded-warehouse business because of their central location and their greater convenience. No free-port warehouses can be erected in so central or so convenient a location as the old warehouses.

In Hamburg the Free Port Warehousing Company maintains warehouses with about 5,000,000 square feet of space. The warehouses are run upon a self-supporting basis. The capital for the installation was provided partly by private interests, partly by the State. The management is private, with State representation on the board of directors. Opposite is reproduced a row of buildings of the Free Port Warehousing Company at Hamburg. They look like university dormitories.

Men, not Mechanism, Must Win Foreign Trade.—We should have a bill authorizing the institution of free ports in this country. And yet the free port is simply an efficient tool of foreign



trade. The main purpose should be to develop the men who will handle that tool—the owners of ships and their operators, the merchants, and the bankers, who must work in coöperation. It is well to imitate the instrument of foreign trade which Hamburg created. But it is better to imitate the men she trained to use that instrument. Americans must learn to have what has been expressed as “the export mind.” Individual Americans must make the sacrifices involved in intensive training for foreign trade and long and observant residence in foreign lands. The Government can help some, but we must set out to help ourselves, for in international trade there is no short cut to success.

The great British and German merchants still retain the ancient custom of apprenticeship for their sons. They serve their terms in all parts of the world. They are found in the banking houses of Petrograd and New York, in the shipyards of Philadelphia and Belfast, with grain merchants in Buenos Aires and Odessa, with cotton buyers in New Orleans and Galveston, and with the exporters of Calcutta and Hong Kong. They learn the language, the customs, and the wants of the peoples with whom they live, and they come home a splendid body of men, to be recruited for the Government and the business world.

In the New York hearings of the Tariff Commission Mr. Patchin, of W. R. Grace and Company, thus expressed the co-operation that must prevail in creating a consignment market in New York:

“1. American steamers must be prepared, in connection with warehouses, to make the business attractive to shippers of foreign produce, by carrying the goods with options of warehousing and eventually forwarding to any desired market at reasonable rates of freight.

“2. Bankers must be prepared to make the necessary advances against negotiable warehouse receipts.

“3. Warehouse men must present the necessary security to induce bankers to accept negotiable receipts without question.”

Free ports are good things. We should have them. But, in planning the future of our international trade, let us not trust in them nor in any other material thing. Our chief reliance must be on the men that we put in charge of our oversea destinies.

INTERNATIONAL COMMERCE

BY O. P. AUSTIN ¹

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World trade currents cannot be radically changed by even the greatest of wars or the commercial regulations which may follow them. The custom which has grown up among men of interchanging the products of the various world areas and industries will necessarily be resumed with the return to peace.

The growth in international commerce from \$2,000,000,000 to \$40,000,000,000 in the single century which followed the application of steam to ocean navigation has divided the world into well-defined areas for the production of the basic requirements of man, such as food, manufacturing material, and manufactures. The interchanges between the regions producing these articles must be resumed at the close of the war, and the only question which we have to consider is what modifications in the major trade currents may be effected by new attempts at regulation by the various governments at the close of the war. Artificial regulation may temporarily check the consumption or production of groups of the population, but the custom of interchanging food, manufacturing material, and manufactures between those sections of the world in which they are produced cannot be terminated or radically changed by artificial regulations.

Twenty Billion Dollars' Worth of Merchandise Annually Exchanged Among Nations.—The world's international commerce

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in the year before the war totaled \$40,000,000,000. In fact, however, it represented but about \$20,000,000,000 worth of merchandise interchanged among the nations of the world in that year. Measurement of the world's international commerce is usually made by adding the value of all exports and imports. This aggregation necessarily is double the real value of the merchandise forming the international commerce of the world.

This \$20,000,000,000 worth of merchandise exchanged between the nations of the world in the latest normal year, 1913, consisted of manufactures to the extent of about \$8,000,000,000, or 40% of the total. Of the remaining \$12,000,000,000, somewhat more than one-half was manufacturing material and slightly less than one-half food.

The Warring Nations are the Great Trading Nations.—The ten nations actively at war are the chief participants in this national interchange of \$20,000,000,000 worth of merchandise. The total imports of these ten countries actively at war amounted in 1913 to \$12,190,000,000, and their total domestic exports were \$11,930,000,000, making their aggregate of imports and exports \$24,120,000,000 out of a world total of \$40,000,000,000 of imports and exports. The manufactures exported by the ten countries actively at war—Great Britain, France, Belgium, Italy, Germany, Austria-Hungary, Turkey, Bulgaria, Japan, and the United States—aggregated in 1913 nearly \$7,000,000,000; their importation of manufacturing material in that year was between \$5,000,000,000 and \$6,000,000,000 in value, and of food between \$4,000,000,000 and \$5,000,000,000, while they also imported about \$3,000,000,000 worth of manufactures largely for further use in manufacturing.

The imports of the four Central Powers in 1913 aggregated about \$3,475,000,000 and their exports \$3,100,000,000, their total imports and exports thus forming about 17% of the trade of the world in that year. Of the six Allied countries actively participating in the war, the imports in 1913 were \$7,725,000,000 and the exports \$8,703,000,000, thus forming about 39% of the world's international trade of that year. The Central Powers in 1913 exported nearly \$2,000,000,000 worth of manufactures, and the Allied group about \$4,500,000,000. Manufactures form under normal conditions about 80% of the total exports of the

United Kingdom, 68% of those of Germany, 65% of those of Austria-Hungary, 58% of those of France, 55% of those of Italy, and 48% of those of the United States. Manufacturing material forms normally about 33% of the total imports of Great Britain, 50% of those of Germany, and 60% of those of France, while food forms normally about 45% of the imports of Great Britain, 30% of those of Germany, and 25% of those of France. The countries now actively at war took in 1913, a perfectly normal year, about 60% of the world's total exports of domestic merchandise and supplied considerably over one-half of the merchandise forming the world's imports. They supply, as above indicated, about 80% of the manufactures entering international trade and draw to their ports approximately 75% of the manufacturing material and about 60% of the food entering international trade.

The Belligerents Are the World Manufacturers.—It is quite apparent, therefore, that the general trade movements, the great world currents of commerce, are to a great extent created by the countries now at war. They are the chief manufacturing countries of the world, and they must continue after the war to buy raw material and food and to pay for them in manufactures. They draw their raw materials chiefly from Asia, Africa, Oceania, North America, and South America and their food chiefly from Australasia and the Americas, and for the most of these they pay in normal times in manufactures, making up the difference in the fees for the service of their ships and the earnings of their invested capital in those countries from which they buy their food and raw material. How much of shipping and how much of capital they will have for this service after the war is of course problematical, but certainly they will be compelled in the future as in the past to pay in manufactures for a very large part of the food and raw material which they must continue to import for the requirements of their people.

Commerce Must Be Renewed at End of War.—Most of the belligerents except the United States and Japan will have lost a part, in some cases a very considerable part, of their trade, which they will make every effort to regain, while the rest will be on the alert to secure for themselves a share of the commerce lost by

others. They are already planning behind the war lines to enter the field with renewed vigor and with specially adapted machinery of commerce, for the purpose of regaining their lost trade and adding thereto as much as possible. The plans are the most elaborate that the world has ever seen and in most cases are supported by active governmental coöperation for the purpose of extending the activities of each country to every part of the consuming and industrial world. These activities will be further stimulated by the fact that the shelves will be empty in all those sections of the world which have been accustomed to draw their supply of manufactures from these ten warring countries, most of which have been unable, by reason of the war, to export manufactures in the same quantities as formerly.

Man's Commercial Requirements Not Changed by War.—The problem of trade after the war thus resolves itself into a question of the after-war activities of the belligerents and the trade restrictions which may come as a part of the peace terms. Man's needs will be the same after the war as before it. The great manufacturing countries must still continue to manufacture, the non-manufacturing world must still produce raw material and food, and the interchanges must be resumed much as before the war, except as affected by legislative regulations.

Regarding New Trade Regulations.—To what extent new trade regulations will be attempted and accomplished cannot now be foretold. Radical trade restrictions imposed by the victors would have a tendency to bring about at some time in the future a renewal of the present struggle, which has in fact grown out of commercial ambitions. Certainly the world hopes that those participating in the making of peace terms will exercise care so that no seeds of future warfare are sown in the agreements which they may make.

International Hostilities Merely Suspend International Trade.—As to a refusal of the groups of nations now at war to resume trade relations with each other after its close, we can only judge the future by the past. No former war in modern times has been followed by any such result as this. On the contrary, trade be-

tween belligerent countries has usually increased soon after the return to peace.

This was strongly marked in the relations between France and Germany after their war of 1870-71. The imports of France from German territory in 1869, the year prior to that war, were \$50,000,000 in value; in 1872, the year following the war, they were practically \$70,000,000, and they averaged \$66,000,000 per annum in the five years after the war. German imports from France in the same period showed an even larger gain, having been \$60,000,000 in the year before the war and averaging annually \$83,000,000 in the five years following the war. Thus, trade between France and Germany showed an increase of 40% in the years immediately following the war.

Another example is found in the trade relations between the United States and Spain preceding and following our own war with that country. Our imports from Spain in 1897, the year prior to the war, were less than \$4,000,000; in the five years following the war they averaged \$6,000,000 per annum, an increase of 50%; while our exports to that country, which were \$11,000,000 in the year preceding the war, averaged \$14,000,000 per annum in the five years following the war, an increase of 25%.

The next example is that of the trade between Japan and Russia prior to and following the Russo-Japanese war; and here we find that Japan's exports to Russia, which were about \$1,500,000 in the year prior to that war, averaged more than \$3,000,000 per annum in the five years after the war, an increase of over 100%.

No countries in the world are more keenly alive to the importance of commerce and of governmental coöperation therein than those now at war. It seems highly improbable, therefore, that the representatives of their commercial or financial interests will desire to enter upon a business war after peace is declared, or that they will give their consent to any legislation or agreement having as its purpose a restriction of trade.

Commerce Between Belligerent Groups Should Not Be Sacrificed.—The volume of commerce between the two groups of countries now at war was much greater than is usually realized. The six leading countries among the Allied Powers—Great Britain, France, Belgium, Italy, Japan, and the United States—sold in 1913 to the four Central Powers—Germany, Austria-Hungary,

Turkey, and Bulgaria—\$1,275,000,000 worth of merchandise and bought from them \$1,300,000,000 worth, making the 1913 commerce between the two groups of countries now fighting each other over \$2,500,000,000. Great Britain alone sold to the four Central Powers \$400,000,000 worth of merchandise in 1913; France \$150,000,000, and the United States \$375,000,000. Will the Allied countries be anxious to maintain the breach of trade relations with the Central Powers, which in the year prior to the war gave them a market for \$1,275,000,000 worth of their products and supplied \$1,300,000,000 worth of merchandise which they required for their internal commerce or industries? Germany in 1913 sold to Great Britain \$340,000,000 worth of merchandise, to France nearly \$200,000,000, to Belgium \$130,000,000, to Italy \$100,000,000, to Japan \$30,000,000, and to the United States \$170,000,000 worth, or nearly a billion dollars' worth to the six Allied countries. Does anybody believe that Germany will be willing to refuse to reopen trade relations with countries which furnished her a market for a billion dollars' worth of merchandise and sold to her approximately a billion dollars' worth of products which her people needed and will need again when the war is over?

We do not realize how much of the trade of the European countries flows between each other, and how small a proportion is "over-sea" trade. Only 40% of the trade of the European countries as a whole is with the other continents; 60% is intra-continental. The four Central Powers in 1913 sold to the four Allied countries of Europe which they are now fighting nearly \$900,000,000 worth of merchandise, and those four Allied countries sold to the four Central Powers which they are now fighting another \$900,000,000 worth of merchandise. Does anybody suppose that either of these groups of countries which found in their present opponents a market for nearly a billion dollars' worth of merchandise in 1913 will be anxious permanently to have severed trade relations?

Industrial and Commercial Power of Belligerents After the War.—If we are to assume that the countries now at war will resume trading relations with each other and that the peace agreement will be of a character which will not radically change trade currents, we may next inquire as to the industrial and financial

conditions of these ten countries when they will emerge from the war. Will they be able to resume the production of manufactures in quantities greater or less than before the war? Will the loss of man power as a result of the war greatly reduce their power of production? Has the war so affected their financial condition and supplies of capital as to reduce or increase their power of production? Will they be able to sell their manufactures on the long credits which formed so important a factor in their former trade success? Will they still have in the foreign countries the great investments of capital by which they were able to control trade? Will they have the advantage, as heretofore, of a plentiful supply of their own ships with which to send their manufactures to other continents and bring back the needed manufacturing material and food supplies?

Some of these questions are more easily asked than answered, and the answers, if made, could not be applied uniformly to all the countries in question. While the loss of property has been very great in the countries in which the actual fighting has occurred, and while large quantities of munitions prepared in the other countries have been necessarily consumed on the battlefields, this destruction has been offset in some degree by the stimulation of the manufacturing industries of all the countries at war, except in Belgium and those areas in France and Italy in which actual hostilities have occurred.

Most of the countries participating in the war now seem likely to emerge from the great struggle with manufacturing facilities materially in excess of those with which they entered it. True, most of the new factories and many of the old ones will be equipped with machinery especially intended for producing war materials, but the promptness with which the factories of the United States transformed themselves from producers of peace requirements to producers of those of war suggests that a similar transformation of the war-time factories at the close of hostilities may give to the belligerents an increased producing power. As to man power with which to operate the factories, that will of course be somewhat reduced through actual losses of men and reduction in the industrial power of cripples, but this loss will be somewhat offset by the substitution of women workers in many lines. With the possibility of adapting to peace requirements the increased machinery introduced during the war, the loss of producing power

will probably be scarcely appreciable, and the net change may in fact be an increase rather than a reduction.

As to the after-war financial condition of the belligerents and their power to supply manufactures for world markets, the problem is equally difficult. True, there have been great losses, not only within the fighting area but in the expense of munitions and supplies produced elsewhere, but the production of those munitions and supplies has in turn proved extremely profitable to the producers, and if we are to judge from surface conditions the manufacturing industries of those sections outside the zone of hostilities will emerge from the war in a high state of prosperity, at least when measured in terms of existing currency. That the manufacturers will be required to contribute for a long time a considerable part of their earnings in payment of taxes to meet the charges for interest and amortization on the public debts goes without saying, but it seems probable, to judge from the reports coming from all the countries at war, that many of the manufacturers will find themselves at its close possessed of greater facilities than at its beginning. This of course is especially true in the countries that are distant from the scene of the war—the United States and Japan—but it applies also to those that are nearer, like Great Britain, Germany, Austria-Hungary, and the undevastated sections of France and Italy.

That the demands upon the manufacturers which the several governments will be compelled to make in order to meet obligations resulting from the war will be very great is apparent. The additions made to the debts of the nations at war already exceed \$115,000,000,000, bringing the national debts of the ten countries actively participating from \$25,000,000,000 prior to the war up to \$140,000,000,000 at the present time (June, 1918), and the annual interest requirements from about \$1,000,000,000 up to more than \$6,000,000,000. But practically all these heavy interest payments will remain within the respective countries, since most of the war debts are internal.

Effect of War Currency Inflation on After-War Industrial Powers.—In the matter of currency, "money" so called, the quantity available in every country at war will be very much greater than at the beginning, but its purchasing power will be reduced.

The total quantity of "money"—gold, silver, and paper—in the world has increased from 13½ billion dollars at the beginning of the war to about 32 billion dollars at the present time, and most of this increase has occurred in the belligerent countries. Nearly all of this increase, however, is in the form of paper—notes issued by the governments or by the great banks which serve them—and the increase in this paper money has been far greater than that of the metallic reserve which normally forms its support. The world's "uncovered paper," which at the beginning of the war was slightly less than \$4,000,000,000, is now fully \$20,000,000,000, and this increase has occurred chiefly in the European countries actively participating in the war. That this great increase in paper currency is a species of inflation, and perhaps "fiat money," cannot be doubted. But it cannot be expected that the increase in quantity of manufactures will be at all proportionate to the increased currency available for the operation of the factories. Labor and raw material will be much higher in terms of the depreciated currency. Yet it is a fact that all reports which reach us of the conditions of the manufacturing industries of the countries which have been at war for four years indicate wonderful activity and apparent prosperity of their manufacturers, large outputs of material, and high dividends to stockholders.

Whether the increased producing power and increased earnings which have been built up with the use of this depreciated currency will continue when the pressure of war demand is withdrawn and the industries made again dependent upon the requirements of peace cannot now be fully determined.

Nominally the cost of production will continue high in practically every country of the world, since all the manufacturing countries are now warring countries, and prices of labor and material have advanced with all of them, but will not the increase in price have to be borne by the consumer, whether in the home country or in the non-manufacturing areas of the world? If so, those non-manufacturing sections must in turn advance the prices of the food and raw materials with which they are to pay the increased price of the manufactures, and thus the entire pre-war system of exchanging manufactures for raw material and food will be resumed, but at nominally higher prices for all the articles in international trade.

Other Changes Abroad.—In two of the great requirements of commerce—shipping and capital for foreign investment—the European manufacturing countries will doubtless find themselves badly handicapped at the close of the war. Their shipping facilities have been greatly reduced, especially those of the Central Powers. Their capital in foreign countries has been called home wherever practicable, and some of it has been lost through seizure by hostile governments. In both these lines, however, all the governments at war are actively at work preparing to restore former conditions. In Germany, Great Britain, and France great organizations are being formed to render aid in the construction of ships for the purpose of restoring their merchant marines. Plans are being worked out for the establishment of new banking facilities in the foreign countries, and apparently much more will be accomplished through governmental coöperation than in the past. The several governments will take a greater interest than ever in foreign trade and already evince a greater disposition to participate actively in its conduct. Whether this closer participation by the governments in international trade will work for good or evil cannot yet be foretold, and whether such governmental participation in trade may increase the danger of further international disagreements can be determined only by the experiment.

Summary.—On the whole it may be said that trade after the war will probably not be radically different in its general characteristics from that which existed before the war. The great manufacturing nations (the present belligerents) will continue to produce manufactures for the rest of the world and will continue to buy manufacturing materials and food. They may be able to utilize their much larger circulating medium to increase the quantity of manufactures turned out, but while selling the manufactures at a nominally higher price they may be compelled to pay in turn a higher price for their raw materials and food. Possibly the victors in the war may be able to establish regulations which will slightly deflect the trade currents, but if they are wise they will not make restrictions which will result in a renewal of the war. All the nations are already actively preparing for the new trade agreements which must follow the war, and the strategy of the council table will be as important as that of the battlefield.

The Problem for the United States.—Our own country will emerge from the war with a greatly increased share of world trade. Not only has this increase occurred in the trade with the countries at war, but we are also supplying a much larger proportion than heretofore of the merchandise imported by the neutral and non-manufacturing regions of the world. The increase in our foreign banking facilities which took place at the beginning of the war has already had its effect. Each year shows an increase in the share which the United States is supplying of the imports of the non-manufacturing world. Prior to the war we were supplying but about 15% of the imports of South America; by 1915 our share of her imports was 35%, and in 1917 apparently about 50%. In the imports of Asia the share which we are now supplying is double that prior to the war, and this is true also of Africa and to a lesser degree of Oceania.

Increase in exportation of manufactures at the close of the war will be an even greater necessity with us of the United States than with the other nations, which have been in the past larger exporters of that class of merchandise. In the years immediately preceding the war we had reached a point in our history in which we had no more food or raw material, except cotton, to spare for the outside world, and while our exportation of manufactures had grown in a gratifying fashion in the decade preceding the war, the total in 1913 was only a little over a billion dollars, forming about one-eighth of the manufactures entering the international trade of the world. The percentage which food and manufacturing material other than cotton formed of our exports had been steadily declining and would have continued to decline but for the peculiar conditions of the war and the demand of our Allies for our food. We may expect that at the termination of the war our exportation of food and raw material will return to about normal and that we shall again be, as in 1913, under the necessity of greatly increasing our exportation of manufactures if we are to retain our rank as one of the great exporters of the world.

Further, with our growing population we are becoming more and more dependent upon foreign countries for raw material and food, and in order to have the funds with which to buy these needed requirements we must increase our exportation of manufactures.

278 AMERICAN PROBLEMS OF RECONSTRUCTION

How we are going to do this in the face of the renewed activity of those countries in which labor has always been and probably always will continue to be cheaper than with us is a problem for our manufacturers, financiers, diplomats, and law-makers. Doubtless we shall be able to decrease the cost of manufactures somewhat by increasing further the use of machinery, and this means an increased use of capital, of which we have a greatly increased supply.

XVIb

GOVERNMENT AIDS TO TRADE

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VARIOUS KINDS OF GOVERNMENT AID

When we speak of Government trade promotion we are apt to suggest the idea of the consular service or Government-printed announcements of specific opportunities for trade, or possibly the idea of a world's fair. In our own Government we have a special Department of Commerce, charged by law with the function of promoting the foreign and domestic commerce of the United States. In Great Britain the Board of Trade, in Germany the Imperial Department of the Interior, in France the Ministry of Commerce, in Italy the Ministry of Industry, Commerce, and Labor, in Japan the Ministry of Agriculture and Commerce, and in practically all other countries similar departmental organizations have been charged with extending aid to trade. These ministries or departments have come to work on more or less standardized lines. The trade-promotion work is alike in its general structure, but, depending largely on the amount of attention devoted to the diverse accepted methods of trade promotion, the success in the different lines has varied noticeably. In the present paper this phase of Government aid to trade will be discussed more in detail, in both its historical and its after-war

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280 AMERICAN PROBLEMS OF RECONSTRUCTION

aspects. However, there are some broader sorts of Government trade promotion which deserve at least passing attention.

IMPORTANCE OF LEGISLATIVE DEPARTMENT

The legislature, apart from its control of the purse for the ordinary departmental expenditures, is the great force in the Government for trade promotion. The attitude of the law-making body on ship subsidies, production bounties, export bounties, and high or low tariff on raw materials and manufactures, as on commercial treaties and international relations generally, is always of the highest significance in domestic as well as in foreign trade. Banking is another trade subject which is very much in the hands of the legislators. The creation of our Federal Reserve Board and the facilities for foreign banking which have recently been given by law are important steps in trade promotion by our own Government. Anti-trust legislation and other legislation having to do with the form of business organization and fair and unfair competition at home and in foreign markets may exert a promotive or a repressive influence. The Webb-Pomerene act is another one passed with the promotive intent of facilitating organization for export trade. Stable political conditions within a country, sound policies of developing natural resources and improving the social conditions of the population, and wise encouragement of domestic trade and industry are important elements of the country's lasting prosperity and of its part in world commerce. These are among the cares of the law-making body and are too frequently overlooked in considering what aid a Government is giving to trade.

DIPLOMATIC AID—EXTERNAL AFFAIRS

Diplomacy is another side of Government activity that is vastly important in trade promotion. When a country's foreign policy, as reflected in legislation, diplomacy, and the spirit of the administration of laws, makes a friendly impression on foreign governments and foreign peoples, that country's commerce is aided to just that extent. When a country has colonial possessions, its colonial policy and the administration of its colonial

possessions have a very direct bearing on the trade of its own citizens or subjects and at the same time are closely tied up with its general foreign policy. International group agreements, by which various details of commercial intercourse are facilitated, are of conceded value.

AFTER-WAR NEED OF BETTER INFORMATION SERVICE

The British Board of Trade, announcing the changes in the British Government organization, started out as follows: "It is clear that after the war the demands upon the Government for the collection and diffusion of commercial intelligence for the benefit of British trade are likely to be very much greater than in the past." Our Department of Commerce in Washington has said the same thing in many of its reports during our first year of war. Foreign governments, like our own, are anticipating a period of intense commercial competition after the war. More American firms than ever before will be entering the foreign-trade field. The importance of governmental foreign-trade promotion—that is, by means of a well-developed foreign-trade information service—will be of more significance than it ever has been before. The Government can certainly help firms to get into foreign trade and help them in the conduct of their foreign business. The part of the Government in all this should not, however, be overestimated. In the future, as in the past, it is going to be the business sagacity and competitive power of the individual dealers that will figure most in the competition in foreign markets. Our Government in Washington, however, has prepared to do its part.

WINNING THE WAR IMPORTANT TRADE PROMOTION

The terms of peace and the international commercial agreements which are entered into after the settlement of the terms of peace will have a determining influence on many of the channels and courses of trade in the coming years. The most direct and far-reaching method of trade promotion before our Government at this time is the vigorous prosecution of our end in the great war. When peace comes our Government, with the governments of our Allies, must be in a position to assert itself on the questions which most closely touch our trade.

FOREIGN EXPERIENCE

The specific and avowed trade promotional activities of the important industrial countries are discussed briefly below.

ENGLAND

Report of the Foreign Office Committee.—The first step in the reorganization of the foreign trade promotion service in England during the war was the detailed report of the Foreign Office committee, which was submitted on August 10, 1916. It pointed out that there must be a body of agents distributed over foreign countries and an authority at home to which the agents report and which informs and advises the Government and trading community. In analyzing the organization abroad, it places much emphasis on the services of commercial attachés—that is, resident trade experts abroad—accredited to the diplomatic missions. The committee said, "We desire to emphasize as strongly as possible that the position of the commercial attaché must be regarded as the key to the whole proposed organization," and it was proposed that considerable staffs should be given to the commercial attachés. It was proposed that the consular staffs should be increased in order to allow the consuls to have more time for trade promotion, and the consular service was spoken of as "a preparatory service for the post of commercial attaché." The committee recommended that the appointment of special investigators abroad, following precisely the model of the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce (referred to by name in the recommendation), should be greatly extended.

Reports of the Joint Committee.—In January, 1917, the Secretary of State for Foreign Affairs and the President of the Board of Trade appointed a committee "to inquire into the best form of organization for promoting our foreign trade." The committee was unable to agree as to "the best form of organization," the Foreign Office representatives holding out for exclusive Foreign Office control and the chairman of the committee (Lord Faringdon) and the Board of Trade representative contending for Board of Trade control.

New Joint Department of Overseas Trade.—At the end of August, 1917, the Government announced that the War Cabinet had sanctioned the creation of a new Department of Overseas Trade (Development and Intelligence), the new department to be represented in Parliament by a Parliamentary Secretary who should "occupy the position of Additional Parliamentary Secretary at the Board of Trade and also of Additional Parliamentary Under-Secretary for Foreign Affairs." The plan was obviously a compromise, and in the few months in which it has been in operation it has seemed to have the effect of giving the Board of Trade an even larger share in the foreign trade promotion service than it had before. The Board of Trade has always had control of the trade-commissioner service—the trade commissioners are resident agents in the self-governing dominions. Each trade commissioner has had the assistance of a number of Imperial trade correspondents situated in various districts of the dominion concerned. The service of trade commissioners "is to be supplemented by a large extension," on the strong recommendations of the Dominions Royal Commission; as a starter the number of commissioners is being increased from four to sixteen. It is announced that the trade-commissioner service will be extended to the Crown colonies and protectorates, where the Board of Trade has in the past had only trade correspondents.

The creation of the joint department of the Board of Trade and the Foreign Office brings the work of the commercial attaché service of England closer to the Board of Trade than it has ever been in the past. The commercial attachés have to do in foreign countries many of the same tasks as the trade commissioners in the British dominions. In March, 1918, the *Board of Trade Journal* carried a statement that it was proposed to expand the attaché service to a total of twenty-seven men—in Argentina, two; Belgium, two; Brazil, two; Chile and Bolivia, one; China, three; Scandinavia, two; France, two; Italy, two; Japan, two; the Netherlands, one; Russia, two; Spain and Portugal, two; Switzerland, one; and the United States, three.² It is the policy

² Our Government has (July 1, 1918) eleven commercial attachés, under the Department of Commerce, one each in England, France, Russia, the Netherlands, Scandinavia, Brazil, Argentina, Peru, Australia, China, and Japan. In addition we have resident trade commissioners in some of these countries (five in all). In 1918 the number of

of having resident officials abroad, working exclusively on trade matters, which is being most developed under the British system.

Reorganization of the Board of Trade.—In addition to creating the new joint department mentioned, there has been a strengthening and improvement of the British Board of Trade. In the official memorandum on reorganization, published in the *Board of Trade Journal* January 17, 1918, provision was made for two main divisions or departments of work—the Department of Commerce and Industry and the Department of Public Service Administration. "The Department of Commerce and Industry will be mainly concerned with the development of trade, with vigilance, with suggestion, with information, and with the duty of thinking out and assisting national commercial and industrial policy. The Department of Public Service Administration will be primarily engaged in the exercise of statutory and other administrative functions of a permanent nature with regard to trade and transport now or in the future entrusted to the Board of Trade. It will therefore include the work performed by the present marine, railway, harbor, companies, and bankruptcy departments." Under this division of functions, in which the Department of Commerce and Industry is ranked higher, that Department embraces, besides the Department of Overseas Trade (Development and Intelligence)—the joint department—a Department of Commercial Relations and Treaties, a Department of Industries and Manufactures, a Department of Industrial Problems, a Department of Industrial Power and Transport, a Department of Statistics, and a miscellaneous "General Economic Department." The Department of Commerce and Industry is to "keep in close touch with the Department of Scientific and Industrial Research and with other organizations, such as the Imperial Institute and the National Physical Laboratory." An Advisory Council "thoroughly representative of the commercial and manufacturing interests of the country" will work with the Department of Commerce and Industry.

The significant thing in all this for us Americans is that these subjects have received so large an amount of attention while the country has been straining all its efforts to win the war. Agents both will be increased, but not to the same extent as the proposed British organization.

of the British Government, working on trade research and industrial research, have visited this country and other countries. The British resident service abroad, including trade commissioners and commercial attachés, is being decidedly strengthened. The British Government has at length decided to follow our lead in sending special agents, experts in particular industrial lines, to visit foreign countries and report on the conditions of foreign markets. The British Government has given encouragement to the formation of British chambers of commerce in foreign countries, so that such chambers now exist in Argentina, Brazil, Chile, China (eleven chambers), Egypt, France, Italy (with branches in five cities), Morocco, Persia, on the Persian Gulf, Portugal, Roumania, Russia, Spain, Tunis, and Uruguay. They are not official organizations. It is also worth noting that the publications of the Board of Trade have been rejuvenated, and the new Board of Trade *Journal*, published weekly, is worthy of the regular attention of American business men. The British organization abroad and the distributing organization at home have been made much stronger, and British trade will undoubtedly benefit by it.

Radical Departure in Trade Promotion.—In the summer of 1916 the British Government took a radical step in the way of trade promotion by becoming full partner in the British-Italian Corporation (Ltd.), with a capital of £1,000,000. The British Government agreed to contribute a subsidy of £50,000 annually for the first ten years after the incorporation of the company, or the equivalent of 5 per cent upon its paid-up capital if less than £1,000,000. Provision is made for repayment to the British Government from profits represented by dividends over 5 per cent. In this process of repayment to the Government interest will not be included. The large banks in England—the London County and Westminster and Lloyds Bank—were the chief subscribers to the stock, which was not issued publicly. Under the Italian law the Compagnia Italo-Britannica was formed with a capital of 10,000,000 lire, one-half taken by the British-Italian Corporation and the other half by the Credito Italiano and allied financial interests in Italy. Three of nine directors in the Italian company are British. Three of nine directors in the British company are Italian. Explaining the new venture, the Chancellor

of the Exchequer said: "The primary object of the two companies is the development of the economic relations between the British Empire and Italy and the promotion of undertakings in the commercial and industrial field in Italy. They will carry out banking and financial undertakings which do not directly fall within the strict definition of banking as understood in this country."

The report made public after the first meeting of the British-Italian Corporation (Ltd.), in April, 1917, made it plain that the organization of the company with Government support was largely to counteract German attempts at economic penetration, which had been very successful in Italy before the war. According to the report, published in the *Statist*, the British company, working in conjunction with the Italian company, had investigated seven railway schemes, one canal, three railway electrifications, three harbor works, four mines, four shipping and ship-building companies, two cement companies, one gas company, five general import and export companies, four hydro-electric developments, two land developments, one metallurgical concern, and one waterworks. There were unfavorable reports on some, and favorable on others, which the company would investigate further. There were also various minor financial transactions on trade matters.

It was suggested in Parliament, when the formation of the British-Italian Corporation and the Government subsidy were first announced, that there was room for similar Government aid in financial and commercial matters in Russia and France. In April, 1917, another step in the same direction was taken in the formation of the British Trade Corporation, under Royal charter, "to provide financial facilities for trade after the war." In the House of Commons, according to the *Statist*, it was stated as an object of the corporation "to assist the development of British trade and industries, to procure for British manufacturers orders in connection with new overseas undertakings, and to finance contracts in connection therewith in a way which has not always been possible in the past." The corporation has an authorized capital of £10,000,000, of which £2,000,000 was issued and paid up by December 31, 1917. In January, 1918, the first report was issued and showed that from June to December the principal work had consisted in making connections in foreign

countries, but that some actual assistance had already been rendered to foreign trade, an information service had been set up, and plans were under way for the insurance of commercial credits. The British Government also rendered direct assistance in the form of a subsidy to the great British Dyes (Ltd.), the so-called Government dye factory. Government funds were also advanced to the Australian zinc producers. All these undertakings were tied up with the thought of counteracting German economic penetration and freeing England from dependence on Germany, in accordance with the resolutions of the Paris Economic Conference. The English writers are still expressing wonderment at the extent to which governmental participation in trade has gone in England, a country noted for its long-standing antipathy to such participation.

War Boards and Reconstruction.—Corresponding to our War Trade Board, the British Government has its War Trade Department, War Trade Statistical Department, and War Trade Intelligence Department. In all the governments of the belligerent countries these controlling and administrative bodies, having to do with the trade in war time, have had the impetus, occasion, and opportunity to make investigation into certain important features of trade and have accumulated files of information that may be of great value in the reconstruction period and after. The British Government already has (since August, 1917) its Ministry of Reconstruction, which up to January, 1918, had appointed no less than eighty-seven separate commissions and committees, of which five were concerned with trade development, two with finance, six with raw materials, two with intelligence, and twenty-one with scientific and industrial research. The committees on development of trade are the Commercial and Industrial Policy Committee, Dominions Royal Commission, Industrial Development Commission (Government of India), Belgian Trade Committee (Foreign Office and Board of Trade), Trade Relations After the War Committee (Board of Trade), Committee on the Chemical Trades (Ministry of Reconstruction), Committee on the Engineering Trades, New Industries Committee (Ministry of Reconstruction), and the Board of Trade committees on the coal, electrical engineering, iron and steel, non-ferrous metal, and textile trades and on the shipping and shipbuilding industries.

The Ministry of Reconstruction has made a minute subdivision of the various aspects of the most important after-the-war questions. The Ministry of Reconstruction is a promotive agency that will be a great power for aiding trade, working in coöperation with the Board of Trade and the Foreign Office and the other interested departments of the Government. The Committee on Commercial and Industrial Policy After the War, headed by Lord Balfour of Burleigh, made its final report at the end of April, 1918, giving, with reservations, recommendations of policies to be pursued. It had a cool reception, however, and the *Statist* and the *Economist* voiced a strong body of opinion to the effect that such reports at this time, when world conditions at the time when peace is won cannot possibly be foretold, are of no more than academic value and deserve little attention.

Industrial and Scientific Research.—It was only a year after the outbreak of the great European war when the British Board of Education came out with its comprehensive scheme to establish a permanent organization for the promotion of industrial and scientific research. In July, 1915, by Order in Council the Committee of the Privy Council for Scientific and Industrial Research was appointed. In November, 1916, the Imperial Trust for the Encouragement of Scientific and Industrial Research was incorporated by Royal Charter, Parliament having voted the sum of 1,000,000 pounds sterling to deposit with the trust. The work is actually being carried out by the Department of Scientific and Industrial Research, and in addition to the Committee of the Privy Council there is an advisory council of eminent scientific men and industrial men. By agreement with the Royal Society the great National Physical Laboratory now works under the Department, which also maintains very close relations with the Imperial College of Science and Technology. This concentration and systematizing of scientific and industrial research, with much increase of work in the field, will benefit English industry and trade.

British Overseas Dominions.—The British overseas dominions have also been preparing for the future. The Dominion of Canada, the most active of the dominions in this line, is no longer content to depend exclusively on the agencies of the mother

country for the promotion of Canadian trade and now sends its official representatives to foreign countries to report on trade opportunities from a Canadian standpoint, for the benefit of the Canadian business public. In 1916 the Canadian authorities were quick to appreciate the trade opportunities in Italy offered by the shutting off of trade with Germany. The Canadian Government sent a commercial commission to Italy to study and report on conditions and opportunities and continued the work by means of a resident trade commissioner. The Canadian Government has its separate Department of Trade and Commerce, and the Commercial Intelligence Branch of that department is displaying marked energy during the war period in preparing to build up after-the-war trade. The Canadian trade-commissioner service has been increased so that now (July, 1918) there are trade commissioners or acting trade commissioners in Argentina, Australia, British West Indies, China, Cuba, Italy, France, Japan, Holland, New Zealand, Russia (two commissioners, one in Siberia), South Africa, and the United Kingdom (six trade commissioners, one in London, the others in the provincial cities); in addition, there are Canadian commercial agents in Australia, British West Indies, and Norway and Denmark. Since 1912 there has been special Canadian trade-intelligence service from certain designated British consulates in nineteen countries.

There is naturally a close relation between the various British possessions and the home Government, which in some respects has been made even closer by the war. The Dominions Royal Commission, appointed as a result of the Imperial Conference of 1911, began a study of the resources, trade, and legislation of the dominions in 1912. The commission's work was not completed until 1917, when a report was made containing many recommendations for the promotion of mutual interests. This report induced the British Government to take action in increasing its number of trade commissioners. Extensive increase of activities within the Empire may be confidently expected in the future.

GERMANY

The Old Official Mechanism of Trade Promotion.—In Germany, as in England, the war served to bring out some of the defects in the departmental organization of the Government and hasten

reorganization. We are, and rightly, apt to view Germany as a country that is over-organized—governmentally, in business, and socially. It is therefore somewhat a matter of surprise that the Imperial Government never has had a Department of Commerce. The foreign trade promotion work of the German Government centered in the fourth division of the Imperial Ministry of the Interior. There was a Tariff Division, a Translation Bureau, and an Information Office with weekly, monthly, and annual publications. The Government maintained a staff of resident commercial experts at twelve different foreign points and agricultural experts at six foreign points. The professional consular officers gave very material attention to foreign trade. They not only furnished the ordinary trade information—as to business conditions, trade opportunities, resources, lists of dealers, transportation and other facilities—but they also furnished a certain amount of credit information.

As the war has thrown light on some of the relations of the German Government and trade, it has been stated, on the basis of the liquidation of German firms in Hongkong, that no evidence of Government subsidy to commercial concerns was found; moreover, there was evidence of very bitter competition between German firms. The reports of our alien-property custodian will doubtless make available facts bearing on these important matters.

Government Control of Trade in War.—During the war the German Government has extended its control of trade further and further. The régime of compulsory syndication of industries and of the distribution of commodities in Germany during the war period is beyond all previous experience. The Government has intimated that control will be continued at least through the transition period from war to the complete reestablishment of peace. The likelihood of such continuation has not been received with popular approval in the mercantile community in Germany, although it is fully realized that there must be some carefully worked out mechanism for dealing with the vital questions of raw materials and shipping.

The New Department of Economic Affairs.—The German mercantile community was not successful in getting an entirely sep-

arate and independent Imperial Department of Foreign Trade. As in England, it was successful in getting acknowledgment by the Government that the work needed reorganization. The Ministry of the Interior had too many unrelated functions to make for the best possible work in trade promotion. The new Department of Economic Affairs (Reichwirtschaftsamt) will have charge of matters of commercial policy, labor, shipping, and the economic aspects of agriculture and manufacturing. The *Deutscher Reichsanzeiger* for November 5, 1917, announced the jurisdiction of the department in matters of commercial policy, commercial treaties, war economy measures (including retaliation), the economic aspects of tariff and taxation, mobilization and demobilization, insurance, corporations, banks, stock exchanges, exhibitions, production at home and abroad, statistics, weights and measures. In addition the department will have the subjects of marine and inland shipping and fisheries. In outward organization the new department resembles our old combined Department of Commerce and Labor, when the Federal Trade Commission was not yet in existence and the Bureau of Corporations was simply one bureau in the department.

In the economic literature of the war period in Germany it is apparent that Germany is anticipating and preparing for intense competition after the war. For Germany reconstruction will have not only its obvious meaning and responsibilities, but she must reconstruct her whole overseas trade mechanism. In the past the German Government has not favored the use of German chambers of commerce abroad. During the war the Berlin Chamber of Commerce and the East Prussian Chambers of Commerce (needless to say, with Government approval) have extended their activities all over Poland and have organized branches and show rooms. The exhibition has always figured prominently in German trade promotion. A German industrial exhibition has been held in Switzerland in war time—not without misgivings on the part of the Swiss. In the Swiss press, as in the Dutch press, it has been stated that one feature of German commercial policy in the future will be “operating under a neutral façade.” The German Government has always been a shrewd bargainer in international treaties, and other countries have for years complained of chicanery in its customs laws and their administration. The German policies of ship subsidy and spe-

cially reduced railroad rates on goods that are to be moved by German vessels are well known. The German Government has already adopted its ship-subsidy arrangements for the period after the war, under the law of November 7, 1917, which puts a high premium on speedy rebuilding of the merchant marine. Some definite steps have been taken to improve the system of internal waterways in Germany, to facilitate trade, among which the Rhine-Danube project is the most pretentious.

FRANCE

Although the French writers have been among the most conspicuous in writing on trade topics during the war and in emphasizing the importance of after-war trade, the French Government has not yet announced any direct steps to be taken to strengthen the permanent French trade-promotion organization. The French Government has had other pressing problems to occupy it, but even with them there has been sufficient activity to indicate that the Government is well aware of the need for the support of trade. The question of reconstruction is, for example, very tangible in France, and it is one to which the French Government has devoted much attention. Investigating committees have made exhaustive reports on the reconstruction needs of the devastated districts, and the Government has taken steps to aid the work in every manner possible. The Paris, Lyons, and Bordeaux fairs have been encouraged by the Government. In fact, it has endeavored to assist the Lyons Fair to assume the proportions of the Leipzig Fair. The Bordeaux Fair has specialized on trade with the French colonies and has received the support of both the Ministry of Commerce and the Ministry of Colonies. Another feature of trade promotion in France in war time has been the formation of such organizations as the Association Nationale d'Expansion Économique, under the leadership of the official Paris Chamber of Commerce. This association is working on basic lines, starting out with a survey of French industrial resources, with particular reference to exportation, and working with the Ministry of Commerce and the National Office for Foreign Commerce in vigorously promoting export trade, stirring up interest among all French manufacturers, and otherwise endeavoring to see that France is prepared for the after-war period.

In the official trade-promotion organization of the French Government the National Office for Foreign Commerce is the chief factor. It works under the direction of the Ministry of Commerce but does not rely exclusively on the Government for its funds. The official chambers of commerce and other public, semi-public, or private organizations contribute to its support. It was established in 1898, with the charge of supplying trade information and promoting the foreign and domestic and colonial trade of France. It receives the trade reports of the consuls, commercial attachés, and other diplomatic representatives, the foreign-trade counselors, and the French chambers of commerce abroad. Ordinarily it issues the *Moniteur du Commerce Extérieur*, resembling in form and contents the British Board of Trade *Journal* in its new form. The publication of the *Moniteur* was suspended in 1914, but late in 1917 it was announced that publication would soon be resumed. In the meantime the monthly organ of the Association Nationale d'Expansion Économique was furnishing trade information somewhat on the lines formerly followed by the *Moniteur*.

Conspicuous in the French trade-promotion organization have been the official chambers of commerce in foreign countries. Since 1883 there have been 36 of these chambers established in foreign countries. They were mentioned by Yves Guyot, the famous French economist and former Minister of Finance, as a great power for good, provided they are headed by men of broad enough vision to welcome all good Frenchmen truly interested in promoting French trade interests. Some of the French chambers have been a failure, and others have achieved success. The chamber at Alexandria, Egypt, the oldest, has been one of the liveliest. Chambers on the west coast of South America have done some excellent work. The chambers assert that when the French Government, a few years ago, appointed some commercial attachés, it was with the idea that the attachés could take the place of the official chambers of commerce. The chambers have received a very slight amount of financial support from the Government. During the war it has been urged that the chambers ought to receive increased support, so as to enable all of them to be active, maintain permanent secretaries, and publish bulletins. It has been urged further that there is room for both the commercial attachés and the chambers, that the number of attachés ought to

be increased, and that the offices of the commercial attachés ought to be in the official chambers of commerce. As it is, the chambers of commerce abroad continue to make reports for the benefit of the Foreign Office and the National Office of Foreign Commerce, and upon request for domestic chambers of commerce and individual French business men.

The official chamber of commerce abroad and the commercial attaché are so well established in the French trade-promotion service that it will not be surprising if they are both given increased support in the after-war organization of the service. Now that there are so many big men in France working to promote French trade (men like Messrs. Hauser, Clémentel, Boret, and Lemery, for example), there is little doubt that the French trade-promotion service at home and abroad will be overhauled and materially strengthened. The French Government has made a particular study of the reorganization of the British trade-promotion service and the new Department of Overseas Trade and may work out on somewhat similar lines a scheme of its own.

JAPAN

The Commercial Museum.—The Japanese Government is one of the most active in promoting the foreign commerce of its manufacturing industries. Since 1890, when the Chamber of Commerce law first went into effect, between sixty and seventy chambers of commerce have been established within the Empire, possessing a certain official status. The principal medium of the trade-promotion work under the Department of Agriculture and Commerce of Japan has been the Commercial Museum in Tokyo, with which are allied the thirty-seven other commercial museums in other cities. The main Commercial Museum and to a less extent the smaller ones have made a specialty of showing Japanese goods alongside of foreign goods with which articles of Japanese manufacture enter into competition. In 1917, when the raw-material question, in conjunction with the shipping question, took on critical importance, the Government Commercial Museum prepared some practical exhibits of raw materials of near-by countries which Japan is cultivating as outlets for Japanese manufactured goods. In its budget for 1918 the Department of Agriculture and Commerce carried an item of over 100,000 yen

(\$50,000) for establishing Japanese commercial museums abroad, beginning at Harbin and Singapore.

The Japanese have been foresighted, patient, and persistent in developing trade. In the *China Returns of Trade and Trade Reports* for 1915 the following significant statement appeared: "About 15 years ago a training college was established in Shanghai by the Japanese, known as the Tungya T'ungwen Shu-yuan, which was assisted by Government funds. The students, of whom there are at present about 300, are specially trained for work in China. The college course lasts for three years, and 900 students have already passed through and are now at work in different parts of China, pushing their country's commercial interests. A large site has been secured at Siccawei, and new and suitable premises are to be erected shortly. In 1908 the value of Japan's direct trade with China was Hk. Tls. 89,620,908 [about \$74,385,000], and in 1915 it amounted to Hk. Tls. 197,926,331 [about \$144,277,000], without including the unrecorded trade at Kiaochow during eight months of the year, probably worth another 14 millions [\$11,620,000], from which it would appear that results have fully justified Japanese methods of developing trade." The Japanese Government has similarly encouraged the education of young Japanese in the United States, in Germany, in France, in England, and elsewhere, to give them better equipment for representing Japanese interests. The Japanese have undoubtedly also derived benefit from having these trained men ready to fill missions as advisers in the governments of other Eastern countries.

New Markets in War Time.—During the war the foreign trade opportunity service conducted by the Commercial Museum became busier than ever, as Japanese Government representatives abroad and at home had inquiries for goods of Japanese manufacture to take the place of goods formerly purchased from Germany and Austria. In the summer of 1917 the Commercial Museum announced that efforts to extend the sale of Japanese products to new markets had been particularly successful in the following instances: woolen cloth to Asiatic Russia; cotton blankets to South Africa and Australia; cotton hosiery to England, Holland, Russia, South Africa, and Australia; gloves to England, China, and Russia; imitation Panama hats to England, China,

and Australia; printing paper to England, the East Indies, Australia, and Manila; porcelain to Australia; glass to Asiatic countries; toys to England, America, and Canada. Chief attention has been given to Australia, the Dutch East Indies, and Asiatic Russia, but it is not alone in the Pacific that the Government of Japan has been promoting trade. Government agents on trade-promotion errands have come to the United States and to the South American countries.

Rounding Out the Trade-Promotion Service.—Japan seems now to have recognized the importance of the permanent resident attaché abroad, specializing on commercial matters of national importance. In September, 1917, the appointment of commercial attachés to Great Britain, France, Russia, and China was announced in the press. Provision was made for the appointment of commissioners to act as deputies, and it was announced that there would be eight clerks attached to each of these missions. They were instructed to devote special attention to financial matters. Thus with consular service, special agents, and traveling trade commissioners (mentioned above) and with attachés and resident commercial commissioners, the Japanese Government has completed in the war period the generally recognized mechanism of official overseas trade-promotion agencies.

Commissions Abroad and at Home.—The Economic Commission from Japan to America, headed by Baron Megata and announced in 1917, is a type of the traveling bodies sent to foster mutual trade relations.

Probably the commission that is most important as concerns Japanese Government aid to trade as a whole, looking toward a vigorous after-war trade policy, is the Economic Investigation Commission, appointed in February, 1917. This commission consists of four sections, representing the departments of Foreign Affairs, Agriculture and Commerce, Finance, and Communications, with the Agriculture and Commerce representatives taking the lead in trade-promotion matters. By the end of April the commission had submitted a report on financing organizations for China and proposed the establishment of a colonial institution for developing South Manchuria and Eastern Mongolia, improvement of through traffic between Japan and other countries, adoption

of a protective policy for various products, increasing the domestic supply of fertilizers, standardization of quality of staple exports, readjusting merchant-marine tonnage, attracting foreign tourists, facilitating the supply of industrial funds, and the establishment of a financing organization for industrial enterprises. The commission was organized with a large staff. In the fall of 1917 it took up the question of means of retaining war trade. It has done a great deal to focus attention on vital economic problems.

Establishing Government Export Standards.—The action of the Japanese Government on the recommendations of establishing Government export standards of quality is an indication of the progressive course being pursued in foreign-trade matters. When complaints reached the Department of Agriculture and Commerce with increasing frequency as to the poor quality of exported merchandise, the prevalence of adulteration, and the absence of standards in many important lines, it became apparent that Government action was necessary. The Economic Investigation Commission made its report on the subject. In June, 1917, the Minister of Agriculture and Commerce said, "One of the reasons is to be found in defects of our industrial system. It is therefore necessary to perfect this mechanism by giving more financial assistance to the intermediate and lesser manufacturers. As to the prevention of the production of inferior goods, an improved institution should be founded on the basis of the existing trade guilds, making all the exports concerned subject to examination according to a certain universal standard." The Ministry of Agriculture and Commerce in general followed this idea of working through the trade associations. Regulations were issued by which the standards of quality were set, and the various trade organizations interested in the manufacture and sale of the commodities mentioned were organized into central associations for the purpose. Regulations were issued for matches, silk fabrics, enameled ware, glassware, and braids, and later for hosiery. Goods not coming up to the prescribed standards might not be exported. The inspection—that is, approval or rejection—was not left to the associations. On December 3, 1917, in issuing the hosiery regulations the Department of Agriculture and Commerce made the following statement: "Inspectors of quality will be

appointed by the Department of Agriculture, and the fairness and rigidity of examination and judgment will be fully maintained. There is no doubt that the new system will improve the quality of Japanese hosiery and enhance its reputation abroad." It was expected in Japan that the system of export quality standards would soon be extended to the other important lines. In fact, the Yokohama Chamber of Commerce recommended that a Government Inspection Office be established in every Prefecture.

AUSTRIA, ITALY, AND OTHER EUROPEAN COUNTRIES

Austria.—The quality of the trade-promotion work of the Austro-Hungarian Government has always been admired in other countries. The publication *Das Handelsmuseum* and the published separate consular reports prepared by the competent staff in Vienna and the men at the more important posts in the foreign service have had a recognized place in the literature of international commerce. During the war the Austrian Government has done much to encourage traffic on the Danube. The economists in Austria, like the economists in other countries, have dwelt continuously on the importance of promoting the export trade. The Royal Export Academy in Austria and the Balkan Academy in Hungary are training men for foreign trade positions. The government of Austria-Hungary is more than ever interested in developing the export trade to the Balkans. In a recent issue the *Oesterreichisch-Ungarische Finanzpresse* of Vienna urged the Government to strengthen the consular staff, so that in the consulates there may be men of practical commercial experience. The Government has been petitioned to adopt the policy of sending officials abroad to study commercial and industrial conditions and of subsequently attaching such officials permanently to the trade-information office in Vienna.

Italy.—The Italian Government has for years had commercial attachés, working under the Ministry of Commerce, in the principal embassies and legations abroad and has taken care to appoint energetic, well-trained men to those positions. It has also been fortunate in the selection of its consular officers in some of the principal new markets for Italian goods. In some trade

centers the Italian consuls are prominent in the consular circles and have worked successfully to advance Italian trade interests. Another important respect in which the Italian Government has of late years promoted trade has been in guiding emigration and keeping up a friendly interest in the Italian colonies in foreign countries. The Italian business men and the Italian agricultural settlers in South America have been a factor in building up Italian business there. The Italian Government has been proud of the growth of the Italian merchant marine and the Italian banking system and has given active encouragement to both. In Italy, as in other belligerent countries during the war, trade associations under Government auspices have been formed to facilitate the supplies of raw materials and to regulate production of important commodities for war purposes. The Ministry of Industry, Commerce, and Labor has thus come closer to the needs of the Italian manufacturing industry than it ever has before. The various industrial interests are continually impressing on the ministry the importance of aiding the industries in their efforts to get materials and to dispose of their finished products in the period after the war. Reference has already been made to the formation of the British-Italian Corporation and the Compagnia Italo-Britannica. The organization of these two important companies for the development of trade between England and Italy and for the development of Italian resources through British capital was favored by the Italian Government.

The Scandinavian Countries.—Of the three Scandinavian countries, Sweden has probably been more active in foreign trade promotion than either of the others, although both Denmark and Norway have separate ministries of commerce, whereas in Sweden the commercial interests have been primarily under the Board of Trade, which is simply one branch of the Ministry of Finance. In Sweden the Government has established two kinds of foreign trade scholarships—one designated "export bursaries," for properly trained young men to prepare themselves at home for export service, and the other "traveling trade bursaries," which are intended to facilitate practical training abroad for young men with the appropriate basic training and education. The Swedish Board of Trade has been entrusted by the Government with the selection of candidates and advising as to the need of the course to be

followed. In 1906 Sweden modernized its consular service, which is being gradually strengthened. On important trade questions the Finance Minister and the Foreign Minister have the assistance of an official commercial council of seven members who are leaders in trade, manufacturing, agriculture, and shipping. Sweden and Norway have issued illustrated hand-books concerning the commercial, industrial, and social life of the two countries.

Sweden, Norway, and Denmark have, of course, been vitally affected by the restrictions placed on trade by both groups of belligerent countries. In order to protect their national economic interests the three countries have each maintained large missions of trade experts, business men, and clerks in the capitals of the most important belligerent countries. These trade missions have done their work for the purpose of promoting their trade interests permanently as well as during the war. As an outgrowth of the war missions the Swedish Government has now appointed a permanent commercial attaché in Washington. In these three countries and in Holland the importance of overseas commerce has been brought into relief by the war, and the governments have of necessity done more to promote trade during the war than ever before. The associations of manufacturers and merchants have been constantly prodding the Government officials and following closely every step in Government policy and administration. Norway has already an organization for distributing essential materials. It is possible that the three Scandinavian countries will agree upon a common policy in this important matter. During the war the national industries not dependent on foreign supplies of raw materials have made great progress. There have been exhibitions of homemade products; the principal one, held at Fredericia, in Denmark, is an industrial sample fair modeled on the Leipzig Fair. The list of commodities of Danish manufacture displayed in the fair at Fredericia in 1917 is a revelation to any one who thinks of Denmark as only an agricultural country.

Holland.—Holland, with its highly important overseas colonies and its well-developed merchant marine, has for hundreds of years been one of the leading trading nations. The Government has always operated with the commercial interests of the country prominently in view. The Ministry of Agriculture, Industry, and

Commerce and the Ministry of Colonies, working with the Ministry of Foreign Affairs, have had the promotion of overseas trade as one of their principal activities. The eight Dutch chambers of commerce abroad furnish the Government with trade information. Government funds are available for foreign expositions of Dutch goods and for export scholarships for young men going abroad. There is a special appropriation for promoting trade with South Africa. The government departments coöperate with the important Maatschappij van Nijverheid (Industrial Company) formed to promote trade with the colonies. During the war there was added to the Ministry of Agriculture, Industry, and Commerce a fourth department, called the Department of Crisis Affairs, to attend to war trade matters. In December, 1917, an increased appropriation was made for the Commerce Department to strengthen it at home, make possible the appointment of commercial experts abroad, and enable the Dutch consuls to travel more extensively.

The Dutch East Indies and the Dutch Colonial Office have been active in advertising their products abroad, have issued some very attractive hand-books, participated in the Panama-Pacific Exposition, and now maintain an intelligence office and produce sample room in New York City.

YEARBOOKS, EXPOSITIONS, AND OTHER FORMS OF TRADE PROMOTION IN OTHER COUNTRIES

Many other countries, in and outside of Europe, have taken steps in the way of trade promotion. Spain has an official committee investigating economic conditions, but Spanish business men as a rule view with a certain disdain any announcement of proposed Government assistance. In China and in several of the Latin American countries semi-official chambers of commerce, modeled somewhat after the French system, have been established. Some of the governments have issued hand-books exploiting their lands and setting forth attractions for tourists and settlers and also endeavoring to promote the sale of their principal characteristic products. The yearbook is one of the accepted vehicles of trade promotion and national advertising. Another is the fair or exposition. In Brazil a permanent exposition of Brazilian products was established in 1916. The Brazilian

Government has also taken steps to popularize the use of coffee in foreign countries and to counteract the anti-coffee advertising of certain foreign manufacturers of coffee substitutes. In 1917 Costa Rica established an annual industrial fair. The Government of Siam in 1917 arranged that the Bangkok Fair take on an industrial aspect, Siamese arts and crafts being introduced as a specialty. In 1917 the Swiss Government gave material assistance to the Swiss sample fair held at Basel, and the first fair proved so successful that plans were made to erect a permanent building. During the war the great agricultural fairs in South Africa have also been broadened in scope to pay more attention to the industrial activities depending on agriculture. Industrial expositions in Chile were held at Santiago and at Punta Arenas in 1916, and the Santiago exposition was announced as permanent. In 1916 there was a national exhibition of Portuguese industrial products held under government patronage in the building of the Portuguese National Geographic Society. The fair, like the year-book, is a common vehicle of advertising the products of agriculture and manufacturing industries of a country and is a form of trade promotion which has universally claimed its position as a means of Government aid to trade.

OUR NEEDS FOR THE FUTURE

The United States has a good working mechanism for the promotion of foreign trade, and its needs are chiefly those of expansion rather than of reorganization. We have the question of divided control of foreign trade service—the State Department and the Commerce Department—but that is inevitable in any country where a real Department of Commerce is regarded as necessary. In practice our service has demonstrated that such division is not incompatible with harmonious relations and efficient work. The trade-promotion work in the past has taken place chiefly in Latin America. In the period immediately following the war there will be room for a great deal of trade investigation and other promotive work in the various European countries. The Mediterranean district, and in fact all of Africa, has not received much attention from our Government in the way of trade promotion. Likewise we have not devoted enough attention to India, the East Indies, and other sections of the Far East. We should have

an increased number of commercial attachés or resident trade commissioners in Europe, Asia, and Africa. Our consular service might well be strengthened by the addition of certain trade experts to give their entire attention to commercial matters in the consulates. We have, in our Bureau of Foreign and Domestic Commerce of the Department of Commerce, a nucleus for the development of the commercial attaché service and the resident trade commissioner service, as well as the traveling commercial agent service. In our Department of State we have a consular service that is probably better equipped for trade promotion than the consular service of any foreign country. The consuls, unfortunately, often have so many and so varied administrative functions as to be unable to devote much attention to trade. In addition to having the resident commercial attachés and resident trade commissioners whose field of activities covers an entire country or a group of countries, we ought to take steps to strengthen the trade-promotion service in the individual consulates, on which we must depend for detailed local information. This strengthening of the resident foreign service, both locally, by means of the consulates, and nationally, by increasing the number of commercial attachés, is to my mind the best thing our Government can do to improve its present mechanism of trade promotion abroad. Foreign trade-promotion work within the United States and the distribution of foreign-trade information supplied by consuls as well as by the Department of Commerce representatives abroad is entrusted to the Bureau of Foreign and Domestic Commerce, which is also the central statistical office for foreign-trade statistics. Our Government appropriations for trade promotion have been increased every few years, but very cautiously and by very small amounts. The time has now come when demands for the trade-promotion service are increasing heavily. If our Government is to continue to render trade-promotion service adequate to the increased requirements of our industries and commensurate with the reinvigorated activities of other great nations, there will need to be a liberal increase in appropriations.

XVII

FINANCING OUR FOREIGN TRADE

BY HENRY E. COOPER ¹

Vice-President, the Equitable Trust Company of New York

INTRODUCTION

The most important stage of the economic life of a country is reached when, with its agricultural and mineral resources well developed and its industries capable of producing over and above its own needs, it begins to invest surplus capital in other countries that are in need of it. It is through this export of capital for the double purpose of securing better returns and of creating permanent consumers in foreign markets that the foreign trade of a country is definitely established.

CHANGES BROUGHT BY THE WAR

The war has at one stroke changed the economic aspect of the world, and America has become over night, as it were, the chief provider of the belligerents.

How important the shipments of all kinds of materials to the Allies have been is best illustrated by the figures given out by the Bureau of Foreign and Domestic Commerce. The trade balance in favor of the United States from the beginning of the European war to March 1, 1918, was \$8,878,004,669. Not only has America been a vast storehouse from which the Allies could procure all the raw materials they needed and an immense factory which turned out finished products of all descriptions, but it has

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also become a big banking house which extended loans and financed the purchases of the Allies.

There is no doubt that some of the conditions brought about by the war will persist with the return of normal times. America will, perforce, have to supply the immediate demand for finished goods which will be wanted in those countries where all activities for the last few years have been devoted to the prosecution of the war, and she will have to continue her exportations of raw materials.

America's position as a provider of both materials and capital is now universally recognized, and the chairman of the Barclay's Bank of London in a recent address declared: "America produces in raw materials and in manufactured articles nearly, if not quite, all that the British produce. Moreover, she is no longer indebted to England; on the contrary, she has repaid her debts to England and is now a creditor country as regards ourselves." Having started on her financial career, America is not likely to discontinue her activities as a money lender. It is probable that for years to come it will be customary to look to New York whenever a great transaction has to be financed or when new enterprises call for capital. America undoubtedly has to prepare to meet the demands which will be made upon her.

ADJUSTMENTS UNDER CONSIDERATION

In all the leading countries of the world there is a tendency to adjust existing conditions to meet the changes which the war will have brought about.

In England.—In England the Joint Department of Overseas Trade has begun its work. This department has been jointly formed by the Foreign Office and the Board of Trade and will be represented in Parliament. The new department will receive reports, undertake inquiries, and assist in constructive overseas work through the services of trade commissioners, commercial attachés, and consular officers.

That it will be necessary to do much in regard to financing foreign trade has been demonstrated by the project to create the British Empire Bank of Industry, whose object it would be to strengthen and to extend the British producing and manufacturing

industries and to help them in financing their foreign trade activities. Furthermore, the British Trade Corporation was formed by Royal Charter on April 21, 1917. This corporation has for its purpose the carrying on of the business of trading and banking on most extensive lines in any part of the world. It proposes to coöperate as agent with the Government or with any bankers, manufacturers, merchants, shippers, and others, to carry on business as contractors, merchants, traders, or promoters on its own account or in partnership, to acquire and hold any interest in any commercial, industrial, or financial enterprise of any kind and in real estate, to act as trustee, etc. But the two most interesting objects of this \$50,000,000 corporation are, first, to establish and maintain information and investigation bureaus to undertake experimental and research work, and second, to become an agent for the representation of British interests so far as relates to trade and finance, in cases where the Government is desirous that British capital shall participate in financial operations.

Besides, British bankers are keenly alive to the necessity of adapting their banking facilities to the prevailing conditions. For instance, two important South American banks owned by British interests have arranged lately to have direct representation in Manchester in order to offer their Manchester clients all the facilities of shipping, exchange, and agency departments. The banker in England proffers to the business man not only his financial assistance but also his knowledge and experience of overseas conditions.

In France.—In France the Government and groups of public-spirited citizens have created a number of associations which aim to bring nearer to the citizens the importance of foreign trade. Among these associations we may name the National Association of Economic Expansion, whose object is to assist in the establishment of new industries and the finding of new outlets abroad; L'Exportateur Français, whose purpose is to educate French manufacturers in export trade; the Comité France-Amérique, for the development of commercial relations between France and America; the France-Latin American Association, especially interested in furthering French trade with South America; and the National Union for the Exportation of French Products and the Importation of Raw Materials, whose object is to estab-

lish coöperation for the necessary and desirable after-war purchases and sales. The French Minister of Commerce, addressing the members of the National Association of Economic Expansion, recently made this remarkable statement: "In order to secure economic expansion, it will be necessary for the Government to give you its aid. The first and most important means which the Government will have to take recourse to will be the creation of a bank to finance exportation, a bank which will be in a position to discount bills of six, nine, and twelve months. Experience shows that certain markets, in spite of all efforts, have remained closed to business men who refused to allow credit facilities. Our enemies have frequently beaten us with only this weapon, credit. I am trying, in coöperation with the Minister of Finance, to prepare the creation of a central credit institution for foreign trade."

In Germany.—In no country in the world has the necessity of a well-planned credit policy been better understood than in Germany. It is needless for us to describe what Germany did before the war. Now she prepares for the after-war period, and with characteristic thoroughness the Imperial Commission of Transition Works has laid down the foundation on which to rebuild the shattered economic structure of the German Empire.

A new German Export Bank has been established to place acceptance credits at the disposal of export firms to enable them, with the removal of the prohibition of payments to foreign countries, to redeem their credits there. It will grant commercial credits for incoming and outgoing consignments and advance money on consignment. It will establish branches in foreign commercial centers where no German banks hitherto existed, will operate through neutral banks in colonies of enemy countries, and may tender bids for construction or installations which might have been in German hands if there were means of financing them.

Furthermore, it has been reported that there exists in Germany a form of insurance company which, for a commission of about 4 per cent, guarantees approved long-dated bills of foreign trade. It guarantees, for instance, to the German manufacturers the due payment of bills accepted by Russian purchasers. The creation of such a financial institution would undoubtedly encourage the granting of credit in the export trade. The insur-

ance company would have on its books, through its agents and branches, firms in foreign countries to which it could give an insurance credit of a certain amount and so facilitate the granting of desired credits. The bills endorsed by the insurance company would become easily marketable securities, and they would become negotiable instruments with the discounting privilege of the ordinary joint stock bank when they approached the last six months of maturity.

In Austria.—Austria follows as well as it can the policy of Berlin. Austrian banking institutions are trying to raise capital for enterprises and even preparing to create organizations with a special view to foreign trade. From Paris we hear that the Kreditanstalt, the Bodenkreditanstalt, and the Austrian Anglo Bank have furnished a capital of 15 million crowns for the creation of a foreign trade corporation.

In Neutral Countries.—One must not believe that the neutrals have looked quietly upon all these efforts made by the belligerents. A typical example of the preparation of European neutrals is to be found in the measure adopted by the progressive Dutch Government, which has granted the Netherlands Bank up to 20 million florins against loss suffered in foreign trade transactions. Moreover, a Dutch International Trading Bank has been established at The Hague to promote Dutch industries and trade by financing commercial and transport undertakings, to create new industrial companies making articles for export, and to negotiate public concessions for mining and transport and raising financial credits therefor. In Sweden the Finance Minister has proposed the creation of a Government fund for the operation of a company to support foreign trade after the war, and especially to arrange for the import of necessary goods. The capital stock is to be guaranteed by deposit of Government bonds.

CONDITIONS TO BE MET DURING TRANSITION PERIOD

Finance has been very often described as the handmaid of industry and commerce. Indeed, it is the object of the financier to serve the producer of raw materials and of finished goods and to help him to place these goods upon the markets of the world.

310 AMERICAN PROBLEMS OF RECONSTRUCTION

The banker must watch closely the economic life of the community and must always be on the alert to adapt himself to new conditions. If the bankers of America had not followed the industrial progress of the country, many a thriving and prosperous plant would not exist to-day. If now the manufacturer is required to find for his goods an overseas market, there is no doubt that the banker will have to follow this manufacturer on the new path. For that reason, precisely, the banker must study the conditions which are brought about by trading with foreign parts, and he must act not only as the provider of credit to finance overseas transactions but also as the practical adviser of the exporter.

One of the most important duties of the banker will be to learn how to adapt the credit he allows to the necessities of trade. In fact, to quote Sir Edward Holden, "The banker is a manufacturer of credit," and, like all other exporting manufacturers, the banker, whenever he exports his product, must comply with the customs and desires of those whom he supplies. In overseas transactions, in which a great length of time elapses before the goods reach the buyer, it is often necessary to allow credits of unusual length. It should be remembered that the activity of exporters is proportionate to the length of credit. Furthermore, the credit facilities offered by the international banker must be adapted to the prevailing customs in the particular countries. The French consul in Manchuria describes in a report how the Germans were always mindful of the several calendars which prevail in that country when they offered their goods to the natives. The American banker, in lending his credit, will have to see that he meets the requirements of the country to which his credit goes.

The economists and financiers of the world recognize the fact that before the economic life of the world will again become normal, we shall have to go through a transition period, the length of which it is not easy to determine. Georg Bernhardt, the German economist, thought at one time that it would not take Germany more than three years to restore her pre-war state of affairs; now he declares that fifteen years will be required to bring about an approach to normal conditions. Similarly, the Reconstruction Ministry in England is much concerned with the duration of this transition period. In this connection a host of questions arise. Let us for the moment consider only those questions pertaining to the financial aspect of our foreign trade.

EXCHANGE VALUE OF THE DOLLAR

The question of paramount importance naturally is the rehabilitation of the exchange value of the American dollar to its normal pre-war rate. We are sure that this problem will be solved without great difficulty because our exports, unhampered by war restrictions, will favorably influence our trade balance. Moreover, the value of the dollar has been brought down in certain neutral markets not as the result of the normal laws of demand and supply, but as the result of the support given in New York to sterling exchange while British financiers neglected or were unable to provide a similar support in other markets. This situation naturally stimulated the activities of arbitragists, especially in Spain, who seized the opportunity to sell sterling on New York, thus causing a decline in dollar exchange.

Whenever the dollar shows weakness, it will after the war be an easy thing to reinforce its strength by shipping gold. Besides, if the dollar exchange, for some unexpected reasons, remains weak even after the resumption of our exports and the shipping of a certain amount of gold, a possible remedy could be found by raising foreign loans, which would be facilitated, if necessary, by having the United States Government borrow all foreign securities owned and held at the time in America. Similar measures have already been taken both in England and in Germany. However, our ample gold reserve may make this unnecessary.

THE BANKER'S SHARE IN THE REHABILITATION OF TRADE AND INDUSTRY

Immediate after-war problems will be primarily of an economic and industrial character. The banker will have to lend his capital for the rehabilitation of trade and industry, including those lines which will seek overseas markets. His ministrations will be manifold. He will have to tide the struggling concerns over the difficult transition period, and his capital will be called upon to transform war industries to a peace basis.

A great number of plants all over the country will have to be, as it were, entirely re-created. The munition plant will give

way to the agricultural-implement factory. It will be our duty to utilize further, for the best advantage to the country, every ounce of energy which went to the service of the war. But the banker will be called upon not only to readjust existing industries to new conditions—he will also be given opportunities to advance capital for the reconstruction of destroyed property and for the rehabilitation of commercial enterprises which have suffered under the stress of war.

BASIS OF OUR FOREIGN TRADE

During and after this transition period we must realize the position of those countries with which we intend to do business. The United States has become, as a result of the war, the premier creditor State of the world. Every year there will flow to America enormous sums in payment of interest on the loans which she has granted. These countries will have to obtain credit to buy from us during the transition period such finished goods as they need. Moreover, they will have to continue as before to turn to America for many of their raw materials.

The economic welfare of all these countries is of paramount importance to enable them not only to honor their debts but also to become customers of the United States. We must, therefore, welcome importations from those countries which owe us money. Some of these debtor countries will be able to pay their debts by sending us their materials and products. It would be a sound policy for the American banker to finance such importations. Foreign trade does not mean solely exportation. For example, England's power of absorption of foreign merchandise and products is directly responsible for her world-wide trade. Traders of all nations sold goods to England and drew bills on London against the claims thus created. To avoid having recourse to the transfer of funds, which always involves expense and some risk, the world traders preferred to buy goods from her, and to settle their accounts they bought bills on London. The bill on London became thus familiar and welcome all over the world. The huge imports and the consequent exports established the supremacy of sterling exchange.

Exportation alone will not solve the mighty after-war problems. The slogan "Don't import; export!" has been in fashion

abroad. More deeply thinking economists have well shown the delusion of such a program. If all the countries of the world were to follow the watchword "Don't import; export!" an impasse would follow. Which country would be left to consume all the exports from the other nations?

As long as normal trade is being transacted in the world, foreign trade will be an exchange of necessities and an exchange of values. It is, therefore, as necessary for the banker to finance imports as to finance exports.

It is probable that the major part of our exports will consist of raw materials, as the demand for them will be very great, when trade is no longer hampered by war conditions. As a rule, the banker of the foreign buyer ought to finance transactions of this kind; it is quite normal for the banker of the Manchester cotton manufacturer to finance a purchase of cotton in America. But more and more it will devolve upon the American banker to finance even such exportations of raw materials. The scope of financing foreign trade will undoubtedly be widened after the war.

INTERNATIONAL ACCEPTANCE MARKET

If we really want the American banker to enter definitely upon the field of international finance, it will be an absolute necessity to develop a ready market for international acceptances in the United States. The bill of exchange drawn on New York should some day have a position in international commerce and finance comparable to that of the bill of exchange drawn on London. The London financial machinery included innumerable private firms and offices of foreign and colonial banks which completed and strengthened the chain formed by the joint stock banks around the Bank of England. This organization gave her the best possible market for absorbing international trade acceptances before the war.

Our own situation, however, has recently greatly improved. It is true that the Federal Reserve Act has yet to be perfected, but nevertheless, even in its present form many experts prefer it to the British system. While perhaps too limited as yet in its permissive powers as related to foreign bills, it has nevertheless furnished the power of acceptance to our banking system. It now devolves upon our bankers, individually and collectively, to make the best of

their opportunity. In this connection we believe that through the instrumentality of the Federal reserve banks, financial institutions all over the country should take an active interest in international acceptances. In other words, the Federal reserve bank, which is ready to undertake the function of the Bank of England, and the pioneer banks of our big commercial ports, which are ready to perform the duties of the joint stock banks, should be backed by all the other banks throughout the country. The latter, by assuming the functions of the British private banks, would create a ready market for the absorption of foreign acceptances. This coöperation is necessary, as our national banks and trust companies cannot operate chains of agencies such as extend the absorbing power of the British joint stock banks.

In this field of foreign acceptance activities, the recent formation of two banking corporations with the specific object of dealing in bankers' and trade acceptances, or, in other words, of fulfilling in New York the functions of the London discount companies, is an innovation which promises greatly to improve our own discount market for foreign bills.

Another important step forward was taken when, through the Federal Reserve Act, any national bank or trust company having a capital and surplus of a million dollars or over was authorized to establish foreign branches, and when any national banking association was allowed to subscribe an amount not exceeding 10 per cent of its capital to stock of banks organized to transact foreign banking business. This last measure gives all national banking associations an opportunity to participate in fostering foreign trade. Their full appreciation of this opportunity is best proved by the establishment of several such banks owned in whole or in part by groups of national banks. One of them has now forty-eight national banks as stockholders.

To complete the chain, Federal reserve banks themselves have been authorized to establish and maintain agencies in foreign countries as well as to buy and sell bills of exchange. However, the regulations of the Federal Reserve Act restricting the eligibility for purchase by the Federal reserve banks of bills of exchange, trade and bankers' acceptances to those having a maturity at the time of purchase of not more than three months and limiting the acceptance by member banks of drafts and bills of exchange to those documentary bills having not more than six

months to run could and should at the opportune time be extended to longer credits, so as to allow American banks to meet foreign competition in far-away markets.

When once educated to the desirability of foreign acceptance, the American bankers throughout the country will readily purchase paper for which there is a demand all over the world. If America becomes prominent in foreign trade, there will be everywhere a great demand for bills drawn on New York. Numberless will be the bills of exchange drawn on American firms to finance trade transactions between America and foreign countries. The banker who first of all looks for safe investments for his funds will gladly buy international acceptances. But the banker wants his investments to be readily marketable, and he will turn to international acceptances only if he feels sure that they will be taken up easily.

INTERNATIONAL CREDIT INFORMATION

Another essential requirement of foreign trade, perhaps the most important, is efficient international credit information. One must constantly keep in mind that the basis of foreign trade is to be found in the soundness of credit conditions, not only within our borders but also abroad.

The fundamental basis of credit is an efficient information system, which can be established only by direct contact with the prospective clients. In our local banking we have applied the advantages of contact between the banker and the clients. This direct and personal contact should be extended to transactions in foreign lands by sending to those lands capable and responsible representatives who would gather and forward the desired credit information.

EXPORT OF CAPITAL

The rôle of the banker must not be to provide simply the necessary capital or credit for the financing of individual transactions. A transaction represents only a single deal. Foreign trade brings nations together and binds them in the pursuit of common interests. Our international bankers, therefore, must establish the permanence of the country's trade relations abroad

either by granting continual credits to those engaged therein with their own capital or by investing their own or their clients' capital in American-owned or foreign-owned enterprises located abroad.

Countries which have attained a high degree of development always export a great amount of their capital. They find in foreign railways, mines, electrical plants, etc., excellent opportunities for investment. It is probable that after the war the belligerents will for a considerable time be occupied in rehabilitation and will not be able to divert their capital for the benefit of foreign countries. The United States will probably be in a better position than the other belligerents to export capital, and she should utilize this opportunity. A number of American banks have lately shown their intention to establish themselves in foreign countries and to investigate proposals which might attract the money of the American investor.

In this latter activity the banker acts as a guide to the investor. He bears a moral responsibility and will therefore have to study international affairs and conditions closely. In some countries the investor follows the advice of the big banking institutions almost blindly, and many millions have been lost as the result. When a banker floats a loan or underwrites an issue, he gives the moral guarantee of his name thereto. It is therefore necessary for a country which is going to play an important part in the economic affairs of the world to be guided by financiers whose education and training is international. However gifted a man may be, he will never be able to gauge competently the state of affairs in central Africa, for instance, from his desk in Wall Street. The Britisher has become the first international banker of the world because he left his city office and went in person to those countries where there was a demand for his capital.

THE BRITISH EXAMPLE

Wherever the English colonized and wherever they created a sphere of influence a banking house was established. The master of the ship that sailed into the tropical harbor under the British flag was met not only by His Majesty's consul but also by the agent of a London banker.

In 1913 it was estimated that the total British investments in

Argentina alone amounted to \$1,551,000,000. In 1915 the total British investments outside of the British Isles were estimated to exceed \$20,000,000,000, out of which nearly \$2,000,000,000 was invested in trading and financial companies outside of the United States and Canada.

Aside from their great banking institutions located and operating in the British colonial empire or dependencies, British banking interests are looked after in the Near East by the Ionian Bank, with seventeen branches, the Anglo-Palestine Co., with eight branches, and other less important institutions; in the Far East by the Chartered Bank of India, Australia & China and the Hong-kong & Shanghai Banking Corporation, with thirty branches; in South America by the Commercial Bank of Spanish America, the British Bank of South America, the Anglo-South American Bank, the London & Brazilian Bank, the London & River Plate Bank, and others.

Of course, mention should be made also of British capital invested abroad in mining, industrial, and commercial enterprises, but space does not allow us to make even a selection of the most important British companies in this class.

THE GERMAN EXAMPLE

Germany has also, in a most remarkable manner, built up her international financial organization. Spurred by her envy of British trade supremacy, she has endeavored, in the last twenty years, to secure for herself a world-wide financial organization which before the war spread like a network over the two hemispheres. Forty years ago Germany was still an agricultural State, and her exports were negligible. Her progress in the technical and chemical fields enabled her to place upon the market products which were eagerly taken up by the foreign buyers. The German banker, more than any other in the world, understood how necessary it was to help the producer of goods, and it was not unusual in Germany for the banker to go into effective partnership with the inventor of a new device.

Mr. Hauser, professor at the University of Dijon, well describes the solicitous care of the German banker for the interests of trade and commerce. Many a merchant or manufacturer de-

siring to extend the field of his activities went to his banker for financial help, as well as for economic advice. If the business seemed to be interesting, the banker not only was ready to discount a bill or to finance a shipment; he took a more complete interest in the business and, becoming almost an associate of his client, mapped out the departments of an important business organization. This collaboration between banker and business man is at the bottom of Germany's pre-war economic success. The banker, knowing the importance of credit, enabled the exporter to allow liberal credit facilities. Thanks to this magic wand, credit, Russia and South America became excellent customers. The organization of the Imperial Consular Service all over the world was put at the service of the German importer. The consul was not satisfied with sending to his chiefs in Berlin perfunctory reports on crops or social legislation: he inquired into the merits of this or that firm with which the German exporter was in business relations; he passed upon the merits of the notes accepted by the foreign buyers, and notes which were thus guaranteed by consular approval were naturally readily discounted by the German banker. But if the German banker had stayed at home he would never have been able to finance in a thorough and sound manner the overseas business of his customers.

By the creation of branches, *Töchterbanken*, all over the world, the mother institution reached out for new business. In Belgium the Brugman Bank of Brussels was absorbed by the Deutsche Bank; the Compagnie Commercial Belge is controlled by the Diskonto Bank. One knows how the German financier, through the Banca Commerciale Italiana, founded in Milan in 1894, thanks to the coöperation of the Deutsche, the Diskonto, the Dresdener, the Schaafhausener banks, and the Berliner Handelsgesellschaft, took hold of industrial northern Italy. The Diskonto and Bleichroeder conquered Roumania (Banca Generala Romana). In 1905 the Diskonto created the Kreditna Banka of Sofia. The Deutsche Orient Bank, in coöperation with the Deutsche Levante Linie, established branches in Asia Minor, Persia, and Morocco. In 1871 the Darmstadter created the Amsterdamsche Bank. In South America German banks have not been less active: the Banco Alemán Transatlántico has more than twenty branches,

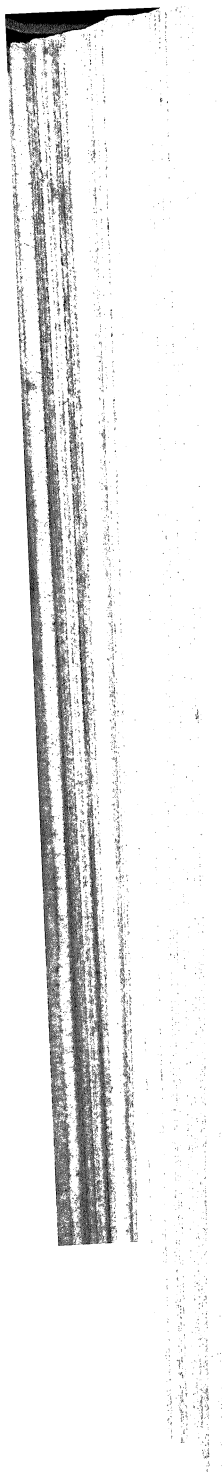
CONCLUSIONS

Being everywhere on the spot, the British and German bankers are in a position to form a clear judgment; they do not have to rely upon information files or correspondence. And there, precisely, is the advantage of a banking organization which is world-wide in its scope.

The American banker after the war will doubtless coöperate with the American exporter. If his coöperation is to be useful he will follow the exporter in foreign countries. He certainly can discount international acceptances in his New York office, but if he is to render constructive service of constant and far-reaching character he will have to get into direct touch with the foreign markets.

Mr. Ansiaux, the Belgian economist, has perfectly described the activities of the great German bank before the war. This bank, he says, is a pioneer of exportation which creates almost everywhere in the world points of financial support that may be compared to those coaling stations with which England has dotted the route from the Indies. Indeed, the bank is the pioneer of exportation because without financial help the exporter would be helpless. The American, in his quest for foreign outlets, must be guided by his banker. Only when he finds abroad American banking houses, American-controlled institutions, or at least American banking representatives, will he feel sufficiently protected to start out on an energetic foreign trade policy.

NOTE.—The description of measures taken or contemplated by European countries has been based mainly on official information (Board of Trade *Journal*, *Commercial Reports*, etc.). We are also indebted for certain data to the *London Economist*, *The Statist*, *L'Économiste Français*, *L'Économiste Européen*, etc.



XVIII

STABILIZING FOREIGN EXCHANGE

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FACTS

Introduction.—The dislocation of exchange rates as a result of the war has inflicted great inconvenience upon American importers and exporters. This has brought about a closer study and analysis of the foreign exchange situation by those interested in foreign commerce. Further, the tremendous volume of the export business resulting from the war has focused the attention of American merchants upon the mechanism of foreign commerce and has brought to light the lack of financial facilities for its conduct.

Trade Balances and Exchange Rates.—In normal times some countries have an excess of exports of commodities over imports of commodities, and others an excess of imports over exports. Those countries that sold more than they bought find that they have an excess of international drafts or bills against foreign countries, convertible at option into terms of foreign currency, and they find also that there is no scarcity of such international drafts or bills in their domestic currency wherewith to settle for their imports—for example, if the United States ships more goods to Holland than it imports an excess of drafts on Holland banks will be for sale with which to pay for goods imported. Holland

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322 AMERICAN PROBLEMS OF RECONSTRUCTION

exchange will then fall below par, and vice versa. Excess of exports normally results in a rise in the rates of exchange above the gold parity. The reverse holds true in the case of an excess of imports. But the transfer of credits or gold or securities will, of course, affect the exchange in precisely the same way as the shipment of commodities.

The war has developed a peculiar situation. On the one hand we find that countries like England, France, and Italy, which have been importing more from the United States than they have been exporting to it, have a rate of exchange which is unfavorable as compared with the dollar. However, there is another group of countries, including Holland, Switzerland, Spain, Norway, Sweden, and Denmark, which, like England, France, and Italy, import more from America than they export to her, but in which, strange to say, this condition has been attended by the depreciation of the dollar in terms of the neutral money. The dollar should be at a premium with respect to the neutral currencies as it is with respect to the currencies of our Allies. The following table presents the facts about the foreign trade of the United States strikingly:

FOREIGN TRADE OF THE UNITED STATES FOR THE CALENDAR YEAR 1917

[Figures in millions of dollars]

	Ex-ports	Im-ports	Balance of trade	
			Favor-able	Unfavor-able
Europe.....	4,054	551	3,503	.....
North America.....	1,265	872	393	.....
South America.....	312	599	.....	286
Asia.....	431	758	.....	327
Oceania.....	117	99	18	.....
Africa.....	51	73	.....	22
Total.....	6,230	2,952	3,279	735

EXCHANGE RATES IN PRINCIPAL COUNTRIES SHOWING A FAVORABLE BALANCE OF TRADE FOR THE UNITED STATES

	Trade (in millions of dollars)			Par	Exchange rates, Dec., 1917		Value of the dollar
	Ex-ports	Im-ports	Excess of ex-ports		Favor-able	Unfavor-able	
Favorable exchange:							
France.....	941	99	842	5.18	5.74	.....	\$1.108
Italy.....	419	36	373	5.18	8.46	.....	1.633
Russia in Europe....	315	12	303	51.46	12.75	.....	4.036
United Kingdom....	2,001	280	1,721	4.86	4.76	.....	1.021
Unfavorable exchange:							
Denmark.....	32	1	31	26.8	.....	31.50	.851
Netherlands.....	91	23	68	40.2	.....	43.50	.924
Norway.....	63	6	57	26.8	.....	32.8	.818
Spain.....	92	37	55	5.18	.....	4.08	.788
Sweden.....	21	18	3	26.8	.....	33.67	.706
Switzerland.....	20	20	....	5.18	.....	4.37	.843

Exchange rates cannot depreciate below the cost of shipping gold if the market is free. In normal times if the English pound sterling, for instance, declines to \$4.81, or 5 cents per pound (about 1 per cent), it becomes worth while to ship gold to the United States—that is, to buy pounds, which have a gold parity of \$4.865, at the low price of \$4.81. Owing to the increased cost of war insurance, transportation, and other incidental charges connected with gold shipment, the gold shipping point has declined to about \$4.76, at which the pound has been maintained for some time. In other words, if gold moves freely, it is an automatic corrective of fluctuating exchange rates.

Exchange rates which are either above or below par, as a result of an excess of exports or imports, respectively, can be corrected by the flow of commodities, gold, securities, or loans. These loans may either be bonds or short-time paper or bank balances placed by the creditor country in the debtor country. All these methods have been used in times of peace. The interference with shipping goods under war conditions, the embargo on gold, the difficulty of placing securities in creditor countries, legal impediments in various countries against the flow of credits by long-

term or short-term loans have all conspired to interfere with the normal laws of exchange. Any remedy which can be proposed to restore exchange to par must involve the return to one or more of these forms of international credit adjustment.

THE EVILS OF THE PRESENT SITUATION

Instability.—Modern business is characterized by the anticipation of future conditions. The time element is vital. In olden days, when business was confined to spot transactions, fluctuating monetary standards caused little trouble. To-day, however, change in any of the elements which cannot be estimated may inflict a great loss upon the merchant and unsteady the entire industrial situation. Just as in domestic affairs fluctuation in the purchasing power of the dollar would inflict loss on one class and unjustly benefit another, so in foreign commerce an unstable purchasing power of the dollar is equally harmful. Now, an abnormal exchange rate, whether it is above par or below par, must be unstable. The point of equilibrium is parity, a figure which represents the value of the gold in the unit of foreign currency. Under present conditions the average merchant, instead of working on solid ground, is trying to operate in a rocking boat. He therefore cannot commit himself to any large transactions and bank with confidence on the future but instead must buy from hand to mouth, a method which is unprofitable to himself and costly to the community which he serves. If for no other reason than the stabilizing of industrial conditions, there would be ample justification for bringing foreign exchange rates back to par. Our Government has the power and the imperative duty to bring and keep the dollar to gold par throughout the world.

The Harm to the Community.—When foreign exchange rapidly fluctuates, the consumers suffer from unjustly fluctuating commodity prices, due to the depreciation of the American dollar in terms of foreign currencies and its fluctuating purchasing power. In other words, in times of war, when we are restricting our purchases abroad to the minimum of essential requirements, a depreciation of 40 per cent in the dollar means an additional burden. Note particularly that this burden does not fall especially on the rich, for imports of articles of luxury are pro-

hibited, but on the average consumers. It is a burden of the most unjustifiable kind, affecting the essentials or the necessities of life, which already are pressing heavily enough.

In other words, if with the neutral countries with which we have transacted foreign trade amounting to \$450,000,000 we lost, say, 25 per cent as a result of the fall of the dollar, it means that consumers in the United States are paying \$100,000,000 more for merchandise than they would pay if the dollar brought all that the gold in it would bring. In war time particularly is the harm felt the most. For every dollar that we waste then, whether it is in useless purchases or in excessive prices due to depreciated dollars, is just that much money taken out of liberty loans or out of funds available for war expenditures. The community has less money for war needs. A dollar depreciated with respect to foreign exchange can be justified as little as was the depreciated currency with which we had to transact our business after the Civil War. We gloried in the "resumption of specie payment" after the war, which was simply bringing the domestic dollar to gold par. It is of identical importance in our foreign trade to bring the American dollar to gold par.

The Loss to the Individual.—In addition to the unsettling effect upon a community as a whole, the individual business man affected by unstable foreign exchange rates suffers most unjustly. He has imposed upon him not only the ordinary difficulties incidental to conducting business in war time, but the entirely unnecessary burden due to the need for constantly adjusting himself to a fluctuating exchange rate. He is unable to adhere to any formulated policy. He can make no contract for purchases over a period of months. He must buy from hand to mouth. All the other business operations dependent upon a steady and continuous flow of purchases or sales are correspondingly upset. He operates not on firm ground but on shifting sands and must make his sale contracts on the basis of the highest exchange rate to which he may be subjected, not the lowest.

The depreciation of the dollar has in the past year been steady. In other words, as the dollar became cheaper, florins, pesetas, and guilders became dearer, so that if the business man bought commodities at one price, he has found at the time of settlement that the foreign currency on which he based his purchases had in the

meantime risen in value, so that he has had to pay more dollars to obtain the same amount of currency with which to pay for his purchases abroad.

THE ALLEGED ADVANTAGES OF AN APPRECIATED EXCHANGE

Pros and Cons.—Now, there is no denying the fact that in so complicated a matter as foreign exchange, the resultant of diverse forces affecting so many commodities and involving so many countries, there will have to be some benefits accruing to somebody in the situation. To men of affairs the vital thing is to realize that the disadvantages outweigh the alleged advantages. Upon careful examination, there remains no doubt that the supposed benefits shrink into insignificance and that the disadvantages to us and our Allies are of serious consequence.

THE PRACTICAL ASPECT

Is the Depreciated Dollar a Good Thing?—It is held in some quarters that the depreciated dollar works to our advantage. This argument, if driven to its conclusion, falls of its own weight. If the depreciation of the American dollar to the extent of 30 per cent confers benefits upon us, why not attempt to obtain more benefits by depreciating the dollar to 60, 90, or 99 per cent? The fallacy immediately appears by the *reductio ad absurdum*. Russia and Mexico show the results of depreciated currency. Further, if depreciation of currency confers a benefit on a country, why did we after the Civil War make such unremitting efforts to restore our paper to a specie basis? Why is Austria, whose currency is so greatly depreciated, regarded as a poor credit risk in after-war trade? Why are our Allies making such strenuous endeavors to restore their depreciated exchange to parity in the neutral countries? Why did France raise a loan in Spain, paying 7 per cent, or 3 per cent above the prevailing rate, in order to lose the so-called advantages of a 40 per cent depreciation of the French franc in Spain? Why did England ship to the United States one billion dollars' worth of gold, borrow about two billion dollars of private lenders, ask for an extension of United States Government credit of about three billion dollars, and peg the pound sterling near par in New York, if the depreciation of the

pound sterling in America was an advantage? If, as is reasonable to suppose, all nations consider a depreciated currency a grave defect, what is there in the American situation to warrant the opposite belief; and if there is nothing, does not the argument in favor of depreciation collapse?

Does the Exporter Gain to the Extent That the Importer Loses?—The argument has been advanced that just in the degree that the importer loses the exporter gains, but the fallacy of this argument becomes apparent upon examination. Now, the Dutch merchant, for example, sells his commodities in guilders, and the price in Holland is determined as a result of the manifold influences of supply and demand, which operate to establish a level of prices f. o. b. at the point of sale. No matter whether the purchaser of Dutch commodities resides in France, Great Britain, or the United States, he pays the same number of guilders. In other words, if guilders remain at a stable level of appreciation, the consuming communities suffer a loss. And if, as is a fact, guilders rise continually and the appreciation grows, then the individual importer in the United States, France, or Great Britain loses, as a result of the change during the interim between the purchase of the commodity and the settlement of the debt in the value of the monetary unit in terms of which the purchase was executed.

It is clear that the importer loses, but does an American exporter, for instance, gain? The price for American commodities is determined as a result of the diverse forces of supply and demand which operate at the point of sale. In other words, regardless of the foreign purchaser or the status of his currency, the price in dollars is the same. For a purchase made in depreciated sterling or appreciated florins, the Englishman or the Dutchman pays the same number of cents per pound. In other words, on each individual transaction the American exporter gains nothing.

THE POINT OF VIEW OF THE ALLIES' INTEREST

Does the Depreciated Dollar Make Allied Purchases in Neutral Countries More Feasible or Economical?—It is argued that the causes which brought about a depreciation of the dollar have enabled the Allies to buy the necessary supplies of the neutrals.

This argument should be restated as follows: England, France and Italy imported more than they exported, so that bills of exchange on them accumulated in the neutral countries. They were able to dispose of by selling them in the United States and obtaining dollars therefor. This supply of dollar exchange which neutrals accumulated was far in excess of their need for dollar exchange required to pay for their imports from the United States. The final effect of these sales was that dollars depreciated because the neutrals were selling their exchanges in the American market. Why were they selling sterling, for instance, in the New York market? Because England supported sterling at a level of \$4.76 7/16 in the United States, or a depreciation of 10 per cent. In Spain, on the contrary, she permitted her exchange to depreciate to a very much larger extent, so that foreign exchange dealers all over the world were able to buy the pound sterling in the Spanish market at a low free price and sell it in the New York market at its higher fixed price. Now, the question is: Is the depreciated dollar essential to keep open the trade route between England and the neutral countries? Most decidedly no. If for instead of leaving open only one outlet for the disposal of the sterling exchange which now floods the American market and depreciates the dollar, it would be sounder to resort to any other means which could keep the neutral markets open to our exports. For instance, they could ask for loans, either private or public, in the neutral markets. France has been doing this in Spain, and we have been doing it in Argentina. Or our Allies might offer securities of the neutral countries to them. In this life and death struggle for liberty the neutral whose position has always been threatened by Germany could be induced to extend aid to the Allies; and if necessary, the Allies could bring influence to bear on all well-disposed neutrals. If they did this, the dollar would also remain at par. Intrinsically it should be at par, as our exports exceed our imports. The dollar is dragged down only because the pound sterling has depreciated, and the pound sterling has depreciated only because it has not been supported in the neutral countries as it was in America, even at the time when we were neutral. Of course, if the pound sterling were thus supported in the neutral countries then all the dollar balances, instead of accumulating dollar balances against the United States, would scatter their balances and accumulate for the

count sterling balances in London, franc balances in Paris, and lira balances in Italy; or if they preferred to accumulate their balances where the gold reserve was, they could transfer these sterling, franc, and lira balances to the United States at par.

Depreciated Exchange is an Increased Burden to the Allies.—Those of us who have been studying the foreign exchange situation have seen that the depreciated exchange was a tremendous additional, unnecessary burden on the Allied cause. In other words, here are the belligerents raising huge loans for the prosecution of the war. In so far as the cost of living has risen, these sums are not buying the volume of the commodities that they would buy in peace times. Admittedly, if Professor Irving Fisher's scheme of stabilizing the purchasing power of money had been adopted, it might have saved the Allied cause many billions, for commodity prices have risen more than 100 per cent since August, 1914. However, in addition to this huge rise in prices, we face an avoidable increase in the cost of commodities, which is occasioned by the depreciation of foreign exchange value of the currencies of the Allied countries. For every billion dollars that the Allies expend to-day, when their exchange rates are depreciated 40 per cent with respect to the neutral countries, there is a loss of \$400,000,000, which is imposed upon the already heavily burdened Allies. More loans must be raised to-day and more taxes will have to be paid in the future if this obvious evil is not adjusted. In other words, the Allies borrow or buy to-day of the neutrals in depreciated dollars, sterling, francs, and lire; but the loans will be repaid in 100 per cent dollars, sterling, francs, or lire. Only recently came a cable from Paris in which Mr. O. T. Crosby, charged with the duty of adjusting foreign exchange, fully confirms this judgment of the hardship inflicted by depreciated exchange.

THE POINT OF VIEW OF THE INTEREST OF THE UNITED STATES

The Depreciated Dollar Increases American Exports.—Those in favor of a depreciated dollar during the war state that the American exporters gain. We have proved already that the individual exporter does not gain. Let us now examine the second phase of this argument as it applies to the country as a whole. It

is true that when the dollar declines 40 per cent or more of its value in foreign neutral countries, it pays the foreign neutral trader to buy in the United States at our expense. This means, in other words, that in spite of the war the United States is running a special bargain counter exclusively for the benefit of the neutral countries. The amazing figures of the tripling of our exports to the neutral countries in one year indicate the extent to which this policy of special favors to the neutral countries has been allowed to be carried. At a time when the entire energy of the Nation is being devoted to the prosecution of the war and to the conservation of our resources, is it wise to stimulate our exports to neutral countries? Most decidedly "business as usual" is not desirable in war time either at home or in foreign trade. Mercantile considerations must yield to military necessity. The overwhelming exigencies of the moment favor conservation. If these exports to neutrals include essentials needed in the prosecution of the war, then the depreciated dollar is helping to sap our energies. If the stimulated exports are non-essentials, they are absorbing man power and capital which might better be used in essential industries, and, far worse, they are diverting cargo space which could be more usefully employed. In brief, the stimulation of American exports to neutrals which is put forward as a benefit by the advocates of the depreciated dollar, and which is admitted by those who want to stabilize the dollar at par, is in fact a pernicious influence. Those who favor it transpose peace standards into war time and rate mercantile considerations above military needs. They are as dangerous to the national welfare, because of the subtlety of their argument, as the well-intentioned pacifists who are thinking in terms of impractical social standards.

The Depreciated Dollar Curtails American Imports.—The argument is perfectly sound that when the dollar declines in purchasing power in foreign countries the decline makes our imports more expensive, so that it automatically reduces their volume. But if the curtailing of imports is desirable, why leave the process to forces which we do not directly control and which, in their operation, do not discriminate as precisely as the needs of the moment require? In other words, the depreciated dollar acts as a universal check on imports, regardless of whether they

are essential or unessential. It makes no distinction between the degrees of need. It is necessary to curtail imports during war time, but the entire operation of adjusting the restrictions to the nature of the commodities involved should be left to the War Trade Board.

The frame of mind which would permit the depreciated dollar to regulate our imports would also permit high prices to regulate our consumption. Is it not also true that high prices restrict consumption to essentials? But it is because, as President Wilson so finely said in his address of July 11, 1917, "The laws of supply and demand have been carried into a period where they have no proper place." The President, who was fully aware of the automatic restrictive action of high prices, was equally mindful that rising prices also inflict hardships upon those who cannot further restrict consumption and yet live. Transferring the President's doctrine into the field of imported products, one must conclude that he does not favor the curtailing of imports as a result of "natural" laws whose economic function conflicts with human needs. In the conflict between objective natural law and subjective human happiness, the guide to conduct is, in the President's opinion, the welfare of society and not the verification of abstract doctrine.

America's Interest.—There are those who favor keeping the dollar below par in foreign countries because it enables us to keep the neutrals "healthy," so that they can buy of us after the war. Assuredly it keeps the neutrals "healthy," but at our expense and at a time when they are not in need of our outside aid. Indeed, the plan of having the Allies strengthen the neutrals is much like the process of the transfusion of blood from a fighter who needs all his energies and who is already suffering from the loss of blood to a bystander who is not only perfectly healthy but has been sharing in the fighter's much-needed sustenance.

It seems rather to the calm observer that the need of the moment is not so much to have the Allies keep the neutrals "healthy" but the reverse—to devise methods whereby the neutrals can come with their accumulated strength to the aid of the Allied cause. Applied to the exchange situation, this means that the neutrals should lend their credit to the Allies or buy back

securities which the Allies may hold. This process must inevitably lead to the restoration of exchange to a parity. This operation must be accomplished by private agencies assisted by the governments, because the governments cannot borrow directly under the neutrality law.

Accumulation of Foreign Balances in the United States.—Another supposed benefit suggested is that the neutrals have accumulated dollar balances in this country which will remain after the war. These dollar balances accumulate as a result of the sale of sterling in the New York market at a fixed level higher than that prevailing in neutral markets. The facts are admitted. However, those favoring the maintenance of a depreciated dollar state that these balances will be used by the neutrals in buying here the commodities needed to restore their exhausted stocks. Let us analyze the situation. Why are the neutrals carrying their balances here? Primarily because they profit by the transfer and because the gold is here. The same reason that impels the individual to deposit his money with the strong bank holds true for the neutral nations.

Another reason is that they are buying dollars far below par now and will sell them at par when the dollar comes back to normal. The dollar will come back to normal, for the depreciation of the dollar is not due to any intrinsic weakness, but solely and exclusively to the fact that the English pound sterling has been tacked on to the dollar at the arbitrary figure of \$4.76. When the pound sterling declines in the neutral markets it drags the dollar with it, in much the same way as the man who is having temporary difficulty in swimming will encumber his brother who is helping him to keep afloat. In other words, the dollar is at a discount because England is importing more than she is exporting during the war. After the war England will either normally resume her previous prestige in the international market, or else she will make some arrangement whereby with the aid of the United States she will be able to maintain the pound sterling internationally not at \$4.76, but at \$4.865, and in that case the dollar will promptly bounce back to parity.

At some future time arrangements might be made for the good of all nations to establish a common gold fund to support international credit and to establish international confidence. Then

there would be no special advantages to the neutrals in keeping dollar balances in this country. When all countries are equally safe, and when the dollar returns to par, the neutrals may then reconvert their dollars into their own currency and transfer it to the country paying the highest rate of interest, which normally was England.

To summarize, then, we may say that the accumulation of dollar balances did admittedly result from the depreciation of the dollar. However, when the war is over, these balances will not necessarily remain here but in a free market will seek the highest return. Whether this favored market will be England or the United States will depend upon the extent to which we can popularize trade acceptances and foreign bills of exchange as standardized forms of short-term investments, and to the extent that our large city banks, small country banks, and the investing classes are willing to create a large market for short-term paper. The retention of the dollar balance in this country after the war in no wise depends on the fact that the dollar is depreciated at present.

UNDERLYING CAUSES OF THE PRESENT SITUATION

In the treatment of the evils and the supposed benefits of depreciated exchange, it was impossible to avoid touching on the causes and remedies for the situation. However, a separate and distinct statement at present will make the situation clearer.

Normal Correction of Exchange Involving Two Countries.—Normally the exchange rate of any country rises when commercial bills of exchange drawn against it are scarce. This is true when it exports more than it imports. Conversely, the exchange rate of any country falls when there is an oversupply of its commercial bills of exchange outstanding. This is the case when it imports more than it exports, so that its "promises to pay" are abundant. The needs of commerce are best advanced by a stable exchange, which normally fluctuates slightly around gold parity. Therefore, supplementing the flow of commodities, there is a flow of gold, securities, or credit. Gold flows to a country when foreign exchange rates there are so high that there is a profit above the cost of shipping gold in sending it to such a

country, where it will purchase more money than the gold represents. In other words, the high exchange rate which is due to a scarcity of bills of exchange is brought down when this scarcity is made good by gold shipments. This method of adjustment is the occasional and not the permanent process.

Another occasional or seasonal method is to sell bankers' bills or acceptances in the market where there is a scarcity of commercial bills. In other words, a foreign exchange banker whose information leads him to believe that the high rate of exchange is a temporary phenomenon and that the rate will return to parity lends his credit for a short period. On this he receives interest, and at the same time he makes a profit in the difference of exchange. This method was usual between the United States and England. The exporting of our crops in the fall and the heavy importations in the spring led to a flow of finance bills to offset the fluctuating supply of commercial bills. In the case of some young countries, like Argentina, that had a continuous balance of imports with a resultant decline in their exchange rates, some of the richer countries like England would extend credit to them in order to bring the exchange back to parity.

Exchange Rates of Three Countries—Arbitrage.—In the normal course of business the export balance of any one country (x) may be different in any two other countries (y and z). This difference in the extent of the balance of trade in the second and third countries will result in a discrepancy in the rate of the currency of country x in the two other countries y and z . At such a time it will be profitable for the foreign exchange banker to buy the currency of country x in country y and sell it in country z , for instance, or vice versa. This operation is known as arbitrage and is an additional means of stabilizing foreign exchange rates.

The normal international exchange market is like a hydrostatic system of tanks which are not only connected with the adjacent tanks but are cross-connected with each other, so that if as the result of any influence the liquid in one tank rises above the level of the rest of the system, the connecting tubes will immediately reestablish a uniform level.

The Present Abnormal Situation.—If the above statements express the facts, why is the international foreign exchange market

out of equilibrium? The answer is, simply because the neutral countries in which the exchange of the Allies is at a discount have been unable or unwilling to extend loans, and because the Allies have been unable to ship commodities or unwilling to ship gold or to return the neutral securities.

Short-time financial bills may correct the temporary situation but, as our Federal Reserve Board wisely ruled in 1916, are inadequate to meet the needs arising from the continuous unfavorable balance of trade arising from the excess of imports by the Allied countries during the war. For this reason the Allied exchanges have suffered in neutral markets. How does that affect America? It would not affect America unfavorably if we had not tied ourselves to the British system. In other words, for lack of credit the Allied tanks are disconnected from the neutral countries but are connected with the United States, which in turn is connected with the neutral countries. Therefore, the drain on the Allied tanks is reflected by a lowering of the level of the United States tank. This symbolization depicts our present foreign exchange situation.

If the pound sterling were not maintained by mutual agreement between the United States and England, then British exchange would sink as low in this country as it did in the neutral countries which were trade creditors, and dollar exchange would be at a high premium in the neutral markets. But this would inconvenience England greatly, as her depreciated pound could not then buy in America as much of the war necessities as the pound which is maintained at the higher fixed level.

For the good of the Allied cause, we, as neutrals, before April, 1917, made a sacrifice running into the hundred million dollars for our imports, which we overpaid to those neutral countries in which the pound sterling, and consequently the dollar, was at a discount. Our dollar became depreciated because our private citizens loaned England money in excess of her balance of imports and still permitted unlimited arbitrage. If they had loaned her just enough to pay for her excess of imports from the United States, our dollar would not have become depreciated, because the unfavorable commodity balance would have been offset by a compensating credit. In other words, as regards the mutual transfers of commodities and credits, the two countries would be equally balanced. But our citizens loaned money to England in

336 AMERICAN PROBLEMS OF RECONSTRUCTION

excess of her needs for paying for her imports from the United States and thus enabled neutral countries to dispose of their sterling in a strong market where the gold was piling up. In other words, our exports, while they were in excess of our imports from Great Britain, were not in excess of the sum of commodity imports plus American loans, so that the net balance of debits and credits of commodities, gold, and credits was against the United States and resulted in a depreciated dollar. In lending this money American citizens harmed some business men and the entire country, even as neutrals, but in doing it they aided the cause of their own customers. It would have been better to preserve our own dollar unimpaired and help our Allies by other means of securing the desired result.

REMEDY

An examination of the normal foreign exchange operation supplemented by an analysis of the present abnormal situation reveals the methods which must be adopted to remedy the present situation.

Need for the Remedy.—If the dollar remained at a discount and peace should come, there would probably follow a violent fluctuation of exchange, for industry would be transferred from a war basis to a peace basis, trade routes would be altered, and each such change would add its influence on the delicate mechanism of foreign exchange. The American economic mechanism would bump like an automobile shooting a chasm. If, however, in the meantime the dollar should be brought back to par, we could pass over the transition as smoothly as a locomotive crossing a trestle. The remedy for the present abnormal situation is twofold: there will be need to be an immediate remedy for the period of transition, and a permanent remedy for the period of reconstruction.

Immediate Remedy—Credits.—The immediate remedy, applicable even while we are at war, is for us to follow the policy in neutral countries that England followed in the United States before April, 1917, that France is practicing to-day in Spain, that Germany is forcing to-day on Switzerland and Holland. The

policy to be followed is, "If you want to sell your commodities, you must lend your credit." Whether that credit be in the form of the repurchase of securities or the extension of a loan, it matters not. It is not the method but the substance that counts. England paid 5 and $5\frac{1}{2}$ per cent for money in this country to save the depreciation in exchange rates of several times this amount. France is borrowing money in Spain at 7 per cent and saving a 45 per cent discount ruling against the franc in Spain.

It is to the interest of the creditor neutrals to lend. (1) They have the money available. (2) It will keep their markets from migrating. (3) It will prevent other nations from seeking substitutes for products of the neutrals. (4) Neutral bankers would now be able to cash in their purchase of dollars at par and gain the previous discount as a bankable asset.

If the neutrals wish to express their faith in the triumph of liberalism, it is their duty to support its champions. If the Allied nations are conscious of their purpose and destiny, if they have faith in the ideals for which they are fighting, they will spare no efforts to obtain loans from the neutral countries so as to return their exchange rates to parity. America particularly, with her accumulated gold and her abundant resources, is in a position to make this request; but this is not the only method. There are others available, though possibly less desirable.

First. The desired result may be attained by forbidding the sale by neutrals of pounds sterling for dollars and compelling them to buy with their native currency. This only means limiting arbitrage until the dollar reaches par.

Second. We may accomplish it by placing in neutral states United States bonds payable in their own currency and thus buying the exchange necessary to meet the urgent though moderate demand of our importers. This can be done by French, English, and American banks and bankers. The Government can merely open the way, but neutrality would prevent the United States borrowing directly.

Third. We may accomplish it by encouraging foreign banks to keep balances in the United States in excess of their present deposits and to an extent necessary to offset their unfavorable trade balances with the Allied countries dealing with them—or, in other words, to the extent of their own favorable balances of trade, at interest—and we can afford to pay them 5 per cent or

6 per cent, if necessary, for such balances, rather than compel our merchants to pay 40 per cent for exchange. We may encourage them to buy high-grade American securities and bonds.

Moreover, if the dollar was at par—if the policy of the United States was to keep the dollar at par—these balances of neutral countries would greatly expand, because then foreign bankers would know that they would not suffer any loss in the future as a result of the depreciation of the American dollar. When they know that they will get their principal back with interest in terms of their own currency at par, they will deposit their balances here more readily.

Fourth. We can bring the American dollar to par by imposing an extra tax on goods required by Spain, putting the export tax at the current rate of the exchange, whatever it is. It would probably not take Spain long to discover the wisdom of exchanging pesetas for dollars at par, but I should much prefer avoiding so irritating a policy.

Fifth. Another way to bring the dollar to par is by negotiating with the Government of Spain, with the coöperation of France and Great Britain, and seeking just treatment as a matter of amity and commercial decency. This, however, would require a constant series of Government negotiations and, while of value, would be of less value than using the absolute power which we have to require commercial justice through the regulation and encouragement of individual transactions.

Sixth. The dollar can be brought to par by expanding exports and contracting imports.

The Permanent Remedy—Federal Reserve Foreign Bank.—An immediate remedy is required, but a permanent mechanism is urgently needed for the period of reconstruction after the war and for our future trade expansion. Whether we adopt any definite policy or not, it is our duty as far-seeing men of affairs to prepare for peace as much as it is our duty to-day to fight the war. The conditions in international trade will probably be so unsettled for a considerable period after the war that wise provision should be made for minimizing its unsettling effect. A Federal reserve foreign bank would accomplish that purpose. This measure would be in line with the policy that the European nations have adopted. Even during the war Germany controlled

her foreign exchange operations by means of a Foreign Bill Office or Devisencentrale, through which were cleared all import and export bills of exchange. It has been put forward seriously as a reconstruction measure that Germany centralize the control of foreign bills, so that the Government, by reason of its control of bills of exchange arising out of import or export transactions, could control the extension or the direction of foreign trade. Many countries have established so-called export banks to facilitate the resumption of normal trade relations after the war. England established a British Trade Corporation whose powers are broad and include in part the duties contemplated by the Federal reserve foreign bank. In addition there was formed an Overseas Banking Corporation, whose powers are more closely confined to those contemplated in the proposed Federal reserve foreign bank.

Germany, France, Holland, and Portugal have all established export or foreign trading banks. Apparently the thoughts of business men in all countries are being turned toward the creation of suitable instruments for the meeting of the new needs of a stimulated commercial world. Whether these institutions will be permanent or not depends upon conditions of the future. Our duty to-day is to provide for their establishment during such time as we may need them. The Federal reserve foreign bank has as important a part to play in our foreign commerce as the Federal Reserve Act has had to play in our domestic commerce. The justification of the one vindicates the proposal to establish the other.

The Organization and Fundamentals of the Federal Reserve Foreign Bank.—A bill to establish a Federal reserve foreign bank, introduced on February 20, 1918, drawn by me, is now in the hands of the Committee on Banking and Currency.

It proposes to establish this bank in the City of New York, with a capital of a hundred million dollars. The stock is to be offered to the public or taken by the Treasury if not subscribed, to pay a 5 per cent annual cumulative dividend, and to be made non-taxable, and one-half of the surplus is to be turned over to the United States and one-half to a surplus fund. The bank is to be given full corporate powers and is to be placed under the supervision of the Federal Reserve Board and under the control of

nine directors appointed by the President of the United States. The directors are required to be of tested mercantile experience and are to have a tenure of nine years after the first year, one being chosen annually. They are to receive proper salaries.

The powers of the foreign bank are to be as follows:

(a) To receive deposits from American and foreign banks and bankers, from the United States, or from foreign governments, in current funds, lawful money, national bank notes, Federal reserve notes, or checks and drafts, payable upon presentation, and also to collect maturing notes and bills.

(b) To discount notes, drafts, and bills of exchange arising out of actual commercial transactions—that is, notes, drafts, and bills of exchange which have been issued or drawn for agricultural, industrial, or commercial purposes or the proceeds of which have been or are to be used for such purposes. The Federal Reserve Board is to have the right to define the character of the paper thus eligible for discount.

The aggregate of such notes, drafts, and bills, bearing the signature or indorsement of any one borrower, whether an individual company, firm, or corporation, rediscounted for any one bank, shall at no time exceed 5 per cent of the net unimpaired capital and surplus of said foreign bank. But this restriction shall not apply to the discounting of bills of exchange drawn in good faith against actual existing values. The foreign bank may discount acceptances of the kinds permitted under the authority of this act.

(c) To deal in gold and silver, coin and bullion, at home or abroad, to make loans thereon, to exchange Federal reserve notes for gold, gold coin, or gold certificates, and to contract for loans of gold coin or bullion, giving therefor, when necessary, acceptable security, including the hypothecation of United States bonds or other securities which Federal reserve banks are authorized to hold.

(d) To buy and sell, at home or abroad, bonds and notes of the United States or of foreign governments and bills, notes, revenue bonds, and warrants, with a maturity from date of purchase of not exceeding six months, issued in anticipation of the collection of taxes or in anticipation of the receipt of assured revenues by any State, county, district, political subdivision, or

municipality in the continental United States, including irrigation, drainage, and reclamation districts. Such purchases are to be made in accordance with rules and regulations prescribed by the Federal Reserve Board.

(e) To sell, with or without its indorsement, and to purchase bills of exchange arising out of commercial transactions as hereinbefore defined.

(f) To establish from time to time, subject to review and determination by the Federal Reserve Board, rates of discount and exchange and commissions for the opening of credits at home or abroad, to be charged by the foreign bank for each class of paper which shall be fixed with a view to accommodating commerce and business.

(g) To issue bank notes and receive Federal reserve notes upon the same terms and conditions as are now provided for the Federal reserve banks.

(h) To open credits at home and abroad for the account of domestic and foreign banks or bankers, to facilitate exports from and imports to the United States and exports and imports between foreign countries.

(i) To establish, upon the direction of and under rules and regulations prescribed by the Federal Reserve Board, branches and agencies in foreign countries for the purpose of facilitating commerce with the United States.

THE PURPOSES AND ADVANTAGES OF THE FEDERAL RESERVE FOREIGN BANK

The purposes of this proposed bank are as follows:

To cooperate with and assist American banks engaged in foreign business and to open to all American banks access to foreign business.

To furnish American importers and exporters with credit information and with credit.

To buy and sell foreign exchange throughout the world.

To provide other accommodations, such as freight, express, and insurance, storage and services through reliable concerns, to merchants and manufacturers and to wholesalers and jobbers in their dealings with foreign countries.

342 AMERICAN PROBLEMS OF RECONSTRUCTION

To make available to our importers and exporters, manufacturers and merchants the necessary credits and accommodations for the transaction of foreign business.

To stabilize international exchange just as the Federal reserve bank system has stabilized domestic credits in the United States.

To put and to keep the American dollar at par in every nation in the world.

To make the American dollar a dependable medium of exchange.

To stimulate and encourage foreign banks to make deposits with the Federal reserve foreign banks and with the other banks of the United States, and to encourage the loaning of the banking capital of the United States to foreign countries by giving assurance to capital of its safe return with interest, without discount by an adverse exchange.

CONCLUSION

It goes without saying that no institution, no matter how finely adapted to secure the ends in view, can succeed without the human factor. The Federal reserve system, established in 1914, depended for its success upon the coöperation of the national bankers. Its power was increased by the entrance of the trust companies into the system, at the urgent request of the President and of the friends of the system. Its potentialities will not be fully realized until the American manufacturer and merchant, large or small, appreciate the importance to an industrial community of a large market of trade acceptances as a substitute for the open book account, which is based on indefinable credit and is attended with larger risks. A sound industrial community in the United States must avail itself of the instruments that all Europe has been utilizing for years in the establishment of a sound industrial and financial structure. In the same way our importers and exporters will have to realize that in order that America may attain a place of dignity and esteem in international trade the United States must make itself, by intelligent action, one of the nations of the world whose money will be current at par wherever the streams of commerce flow.

With the coöperation of importers and exporters, who will

create the foreign bills of exchange; of the banking institutions which may buy and sell them at a profit in continually larger volume; of the Federal Reserve Board, which cannot, in addition to its vast domestic burdens, handle all the details of the proposed foreign bank, and yet the assistance of whose able personnel would insure the success of the project; of the clear-thinking students of economics and finance, whose latent powers the Government will have to call upon more and more, as it has not done in the past—in short, by the harmonious union of forces in this country, the United States will be able to emerge from this war quite prepared to enter the larger period of reconstruction in which our increased powers will be devoted, as in the past, to the furthering of the happiness of our own citizens and the promotion of good will among all the nations of the earth.



XIX

FOREIGN INVESTMENTS

BY FRANCIS H. SISSON ¹

Vice-President, Guaranty Trust Company of New York

Despite the colossal expenditures which the United States is making in financing its share of the war, we shall unquestionably emerge from the conflict, as we are to-day, the wealthiest of all nations. When peace is established practically all the world will turn to us for aid. We shall be called upon to extend financial assistance to nearly all mankind. It will be our privilege, as well as our gain, to aid the less fortunate peoples of other countries in the industrial and economic reconstruction after the war and to help them enjoy a new and greater prosperity, for the unparalleled destructive period of the present must be followed by one of intense productivity.

The Importance of Foreign Investments.—Our future national development will be more contingent upon the extent and kind of our foreign investments after the war than may be generally appreciated. The greater our ability and willingness to lend money to other peoples the greater will be our own prosperity and the more secure our international position. Foreign investments will be not merely an aid to the full realization of our national possibilities but an absolute essential in the discharge of our moral obligations.

We should not forget that the disturbance at any one point of the equilibrium of credit is felt everywhere more or less, and

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our interest in the soundness of credit conditions abroad can be second only to our concern in such vital matters at home.

Our enormous gold reserve, which exceeds one-third of the coined gold and bullion in existence, has been acquired because European governments have been unable to pay for their purchases from us in merchandise and have had to surrender their gold. Upon this reserve we have built a credit structure which a large outflow of the precious metal would seriously disturb.

But the recovery of a part of the gold which the extreme exigencies of war forced Europe to send here will be essential to the restoration of European prosperity after the war. It is certain that those countries which have been drained of their gold will seek to buy it back through stimulated exports and curtailed imports. A temporary reduction of our present favorable commodity balance seems inevitable when peace permits a resumption of overseas commerce by all belligerents.

The best safeguard, perhaps, for the preservation of our gold supply consists in the placing of foreign bills, short-term obligations, and other investments abroad. Furthermore, by investing capital outside our own boundaries we shall lay a solid foundation for ultimately increasing both our exports and imports, regardless of the violent readjustments which may occur in foreign trade at the beginning of the economic struggle after the war. For it follows that by making investments in other countries we shall not only provide a fund of money to be drawn against in the future, but we shall increase the purchasing power of those countries by aiding in their development and thereby increasing the demand for such things as we are able to sell them. So enlightened self-interest alone should dictate a policy of well-directed and widespread foreign investments.

How Foreign Investments Aided England.—The wisdom of distributing investments throughout many lands was amply demonstrated by Great Britain's experience at the beginning of the war. On British investments, as on the British Empire, the sun never set. This condition proved extremely fortunate for England during the crisis and undoubtedly was one of the reasons for her ability to finance successfully her needs and those of her allies.

In commenting upon this subject an English authority observed:

"Never had the magnitude of the financial pull which London has become able to exercise over the rest of the world been so clearly manifested as during the present upheaval. The mere threat of war was sufficient to cause all the foreign exchanges to move violently in favor of London, and the machinery of payments broke down because a crowd of foreign borrowers was trying to transmit money to London in payment of obligations falling due, and scarcely anybody was trying to transmit money the other way."

Had not British investors accumulated large holdings in gilt-edge securities, which constituted excellent collateral, it would not have been possible for Great Britain to float such large loans in our markets—certainly not at a favorable rate. And when the financial strain of war increased in England it was conveniently relieved to the extent of hundreds of millions of dollars by the liquidation in this country of English holdings of American securities.

In addition to the valuable service which foreign investments have rendered the English during the period of severest financial stress, they also formed the basis for England's huge foreign trade. We have learned much from the British in finance, but this lesson may eventually prove the most useful of all.

It is true that we have been busy developing our own country, so rich in natural resources, which will require many more years for their full utilization. In the past we have needed and obtained large sums of money from abroad to develop our mines, fields, factories, and railways. But in recent years we have supplied a constantly increasing amount of our own financing, and the war only accelerated the gradual but inevitable change which was taking place in the financial relationship of the United States to the leading European countries. It suddenly converted us into a creditor nation; it forced us to increase our productivity immensely in practically every essential line; it necessitated the creation of a huge merchant marine; but, most of all, it coördinated and energized our tremendous industrial fabric and changed the economic thinking and habits of our people.

We Have Become Bond Buyers.—One of the most significant and far-reaching results of the war upon this nation, in fact, has been the growth of bond-buying on a large scale. It was estimated that prior to 1914 there were not more than 300,000 bondholders in this country. At the time of this writing there are probably between 15,000,000 and 20,000,000, and before peace is declared there will be several millions more. Hundreds of thousands of investors who had never learned the value of bond buying as an aid to frugality are rapidly acquiring the habit. When they no longer need to buy their Government securities they will seek other kinds.

Government bonds have proved the best means of educating the public to security investment, because their possession tends to make the owner value and insist upon stability. The person who realizes the reliable character of his national investment is not likely to waste money in so-called wildcat schemes. He will demand guarantees comparable to those of the Government and will be able to get them in foreign countries. This education will go far toward preparing Americans for the part they will have to play in reconstruction, enlarged development, and new creation which post bellum days will usher in all over the world.

But it is essential for us to consider carefully the political and economic elements which may exert a potent if not a decisive influence in the matter of foreign investments. Many of these factors cannot now be studied, for the simple reason that they have not yet been determined. Indeed, it is difficult if not impossible while we are in the midst of revolutionary economic and social changes to predict with even a reasonable degree of certainty what the after-war conditions will be.

Possible Factors of the Future.—It seems probable, however, that national and international regulation of finances and gold movements will necessarily be continued for some time after hostilities have ceased. The world's supplies of foodstuffs, metals, building materials, and other major necessities will have to be distributed equitably for use in reconstruction.

All countries are studying and preparing for prospective industrial conditions after the war. There is full recognition of the need for coöperation when peace is arranged. The interdependence of the countries comprising the two groups of bellig-

erents is more marked to-day than ever. The Allied Governments realize that they must retain supervision of imports and exports. There is an agitation in England for a law by which the British Government will be enabled to maintain its present extraordinary powers in the regulation of imports and exports for a period of three years after the close of the war.

Future commercial relations between the different nations undoubtedly will be established at the peace conferences, and it is more than probable that the Allies will draw up some broad, general plan to keep German commercial intrigue within bounds. To prevent indiscriminate buying, the Allies must make their purchases on some such lines as they have established during the war.

The alliances created by the conflict may be expected to influence trade policies to a large extent after war, and measures will be taken to preserve and to promote the friendly relations which now exist.

In this connection, Adolphe Landay, Deputy to the French Chamber, Vice President of the Commission of Commerce, and Counselor of Foreign Commerce, has declared:

"The years that immediately follow the cessation of hostilities are certain to constitute, in many respects, a very troubled period for the economic life of the nations—a period during which the Allies will have to face difficulties and will be exposed to perils of the same kind as during the war. They would be guilty of the gravest imprudence if they dissolved their alliance in the economic field upon the conclusion of the war and immediately resumed commercial relations with the enemy under the conditions prevailing before the conflict. . . . Germany willed it by commencing her economic imperialism, by undertaking to make her economic expansion a means of establishing confederations. And it is only after a veritable conversion has been shown to have taken place in the German public spirit that we can think of returning to the former régime."

Taxes, price fixing, and labor adjustments also will constitute important elements in shaping the future of our foreign investments. Protective tariffs generally may be expected, for every

effort will be made to foster home industries in all countries. But all belligerents will certainly abrogate as soon as practicable the present numerous embargoes, restrictions, and inhibitions on foreign trade. This will include the existing regulation of commodity prices, of course, the abandonment of which will again permit the normal operation of the fundamental law of supply and demand. It seems likely, however, that the recession of prices to a level approximating that of pre-war days will be gradual. The readjustment, in fact, may extend over a period of years.

Post bellum labor conditions are sure to affect foreign investments. The losses of able-bodied men have been tremendous and will be larger before the end of the struggle. There has also been a proportionately large sacrifice of mechanical skill which cannot be replaced immediately and the loss of which will be most keenly felt during the attempt to revive normal industrial life. A great redistribution of labor must occur, complicated by the problems of army demobilization, and this is certain to alter in no small degree the trend of war trade.

It appears to be assured that some of the European belligerent states, depleted in their own labor market, will not permit a free exodus of able-bodied citizens. The Swiss Federal authorities, for instance, have lately stated that after the war Germany and Austria are likely to impose some kind of "export prohibition" against productive nationals. For this purpose the Germans will maintain their passport system introduced during the war. The Swiss authorities express the opinion "that Germany will allow only those of her subjects to leave the country whom she considers as being valuable champions for the necessary regaining of lost foreign markets."

One direct result of the anticipated labor shortage will be the fostering of inventiveness, which has received a wonderful stimulus from the stress of war, particularly in labor-saving devices of all sorts.

New and undeveloped sources of productive energy will be sought as never before. Hydro-electric power, especially, will be utilized on a far greater scale the world over. Already Norway and Sweden are converting their waterfalls into the equivalent of 400,000 horse-power. Germany has been utilizing practically all her water power since the war began, making possible the con-

servation of coal. Russia, it is estimated, has 13,000,000 unused horse-power in the rapids and waterfalls of her most important industrial and metallurgical districts. Our own Government has at last awakened to the necessity for developing our "white coal" and has appropriated \$20,000,000 to utilize some of the great water power in the Tennessee River for the purpose of obtaining nitrogen from the air. More than 60,000,000 horse-power in this country and its dependencies awaits governmental consent and investment impulse.

These are only a few possible factors of the future in the field of foreign investments.

Reconstruction Opportunities.—But the great immediate need and opportunity for foreign investments lie in the reconstruction of devastated Europe. The loss of life and property has been so complete in many parts of the continent that reconstruction on old lines will be impossible. In all European countries at war the return of peace will mean not a return to ante bellum conditions, but an upbuilding on a new basis.

The total amount of destruction cannot be estimated with even approximate accuracy and probably never will be correctly computed but doubtless will exceed \$10,000,000,000.

France and Belgium cannot manufacture all they will require for rebuilding. France is likely to import three-quarters of the timber demanded for reconstruction, and Belgium will have to buy abroad all that she needs. Belgium also will have to import, it is estimated, from \$100,000,000 to \$150,000,000 worth of industrial machinery, and France at least \$60,000,000 or \$75,000,000 worth. In addition, farm implements of all sorts must be supplied by other countries, particularly by the United States. So the most far-reaching coöperation of American industries is not only desired but imperatively demanded if France and Belgium are to recover from the blighting effects of their fearful ordeal in the battle for democracy.

France Will Recover Rapidly.—If the aftermaths of other wars and her remarkable war-time industrialization afford any criterion, France will recover quickly from the actual physical ravages of the present conflict. The reconstruction of railroads, the erection of factories to replace those destroyed, and the re-

placement of the industrial machinery that will be required offer a peculiarly inviting field to American capital and enterprise. Tentative steps have already been taken by representatives of American engineers and business men in this work.

Aside from its attractive business aspect, the enlistment of American money and effort in the great task of reconstruction at the end of the war will tend to cement still more closely the ties that bind the two great republics together and will enable Americans to discharge in part the debt they owe to France for her friendly interest in the welfare and progress of the United States from the beginning of its life as a nation.

In judging the industrial status of any nation, its production and consumption of coal, iron, and steel and the growth of its transportation systems are highly significant factors.

In 1869 French industries consumed 21,000,000 tons of coal, of which 13,500,000 were taken from home mines. In 1912 the consumption was 61,000,000 tons, of which 41,000,000 were taken from home mines.

In 1869 the French output of cast iron was 1,380,000 tons, and of steel 1,060,000 tons. In 1914 France produced 5,311,000 tons of cast iron and 4,635,000 tons of steel.

The increasing activity of her railway system is similarly demonstrable. In 1860 there were in France 10,743 miles of railroad track; in 1912 there were 31,546 miles.

Between 1869 and 1912 inland navigation in France increased 150 per cent, while the traffic of her mercantile marine expanded amazingly. The shipping entering French ports in 1869 was set down as 11,000,000 tons. In 1912 this had been increased to 53,000,000 tons.

French Finances Sound.—Immediately prior to the war France had a gold stock equaling \$1,200,000,000 and a stock of silver aggregating \$411,100,000. Of gold, silver, and paper her per capita allotment amounted to \$48.63, which was more than 25 per cent in excess of the per capita of gold, silver, and paper for the United States in the corresponding period; more than twice that of the United Kingdom of Great Britain and Ireland; approximately two and one-half times that of Germany; and more than four times that of Austria-Hungary. With a population of

39,600,000 at the beginning of 1913, France had in postal and private savings banks accounts of 14,578,897 depositors, with aggregate deposits equivalent to \$1,091,303,658. On June 30, 1915, the United States had only 11,811,169 depositors out of a population of 101,740,000.

Reasons for Solidarity.—Leaders in American finance ascribe the solidarity of the French Republic to three influences—first, a thoroughly sound banking system, centralized in one of the greatest banking institutions of the world, the Bank of France; second, the ingrained thrift and frugality of the French people as a whole, together with a national economic vigor not elsewhere surpassed; third, wise supervision and patriotic coöperation by the Government with banking and business interests.

The Government does its part to warrant and retain the confidence of the holders of its securities. One of its wise policies is to impose new taxes to defray the interest charges on new security issues. It began this practice after the Franco-Prussian war and is following the same rule in regard to securities issued to finance the present conflict. This continuity of purpose, doubtless, will prove reassuring to all holders of French Government securities.

The Franco-Prussian war of 1870-1871 taught the French people the meaning of thrift and economy. So well did they learn this lesson that the whole sum of the indemnity demanded by Germany, \$1,000,000,000, was raised within the Republic's confines by its own inhabitants and paid off more than one year before the time stipulated by the Germans. And the habit thus acquired has never been forgotten by the French.

Why America Must Finance Europe.—The national debts of the powers now fighting are multiplying at a prodigious rate and will do so until the conclusion of the war. Their aggregate magnitude cannot now be estimated. To be sure, our own debt is mounting rapidly, but our resources have not been strained and will not be for some time. Furthermore, by virtue of our unequaled wealth, we are certain to be in a sounder position economically than any other nation when peace finally comes.

In commenting upon England's fiscal prospect, Lord Des-

borough, president of the London Chamber of Commerce, explained early this year:

"Whatever the conclusion of this disastrous war, one thing is certain, and that is that our Empire will be burdened with a most appalling and terrific debt. . . . There will be something like 6,000 millions sterling, and that will result in an approximate sum of 600 millions to be paid yearly, which is almost all of the capital of the national debt before the war."

None of the European belligerents will have sufficient financial resources to pay for their reconstruction bills. Consequently, in order to carry out their gigantic programs for rehabilitation they will have to float more loans, a considerable portion of which must be placed in those countries where they can be used in payment for supplies to be bought.

Requests for credit must necessarily accompany the demands which Europe will make for goods in this country after the war, and we shall be asked to take, in partial payment, at least, securities which will give us an interest in foreign enterprises of all kinds. Although the policy will be new to us, we should not forget that Great Britain gained the foremost rank in foreign trade by this method, and that Germany, her chief rival, adopted the same plan in reaching out for foreign markets.

North America.—While the United Kingdom will be prepared eventually to finance many colonial and foreign enterprises, such operations will be on a smaller scale than in the past. One of her richest fields of investment, Canada, will probably continue the war-time tendency and increasingly rely upon the United States. For one of the notable features of our war-time financing has been the rapid expansion of United States investments in Canada. Because of the Dominion's proximity, the growing solidarity between her people and ours, the splendid opportunities there, and her sound economic condition, much of our surplus capital from now on will seek investment there.

South America.—Latin America was a large borrower of European capital before the war, and the development of the potentially great commercial empires to the south was arrested when the financial flow from over the seas was interrupted. But just as

Latin American countries have been compelled to seek funds in increasing quantity in the United States during the last three years, so they will probably seek money here after the war.

South America, with its vast wealth in forest and mineral resources and with its ability to supply foodstuffs, is perhaps the most promising virgin soil for development in all the world. Gratifying results are rewarding those who have devoted themselves to the opening up of the dormant wealth of the Southern Continent. Not only is the general productivity of the soil being increased everywhere to meet the world's insistent demands, but new industries are being called forth by the need for new sources of supply of many commodities or for substitutes.

But this development is not yet proceeding along organized, comprehensive lines. South America is too large and its population too small, its means of transportation too scanty, its labor too unskilled, and its banking facilities too inadequate to permit systematic development of its resources.

To recognize this fact, however, is to realize the immense possibilities which these regions offer to the patient explorer and promoter, be he individual or corporation, be he backed merely by his own energy and capacity or by the millions of powerful interests, be he forester, cattle breeder, engineer, merchant, banker, or investor.

Industrial enterprises in South America experience difficulty in obtaining banking support unless some of the big private banking houses are directly interested. The majority of banks there find it impossible to lock up their resources to the extent required by operations of this nature. An industrial bank, or rather finance company, with branches throughout South America, would have infinite opportunities. With adequate capital and progressive management, such a company would be in a position to support existing industries and to participate in new ones. By assisting in developing the resources of those rich regions it would serve the peoples of South American countries, of the United States, and of the world at large.

Foundation for Foreign Financing Laid.—The major part of our investments abroad will be placed through banks, which will afford not only the most convenience but the greatest degree of safety.

In touching upon this phase of the subject and our foreign trade possibilities, W. P. G. Harding, governor of the Federal Reserve Board, stated very recently:

"National banks having a capital and surplus of a million dollars are authorized by the Federal Reserve Act to establish foreign branches of American banks operating in Latin America as well as in European countries. These branches have been established as a rule by very large institutions, and one of them has at this time 48 national banks as stockholders, who have thus combined to facilitate foreign trade.

"The foundation, therefore, for financing our foreign trade properly through the medium of American institutions has already been laid, and when at last the war is ended and the restrictions upon commerce can be removed and a greatly augmented merchant marine can spread its sails upon the seven seas and carry to all the nations of the world products of the farms, the mines, and the factories of America, branches of American banks will be found at the distant ports to welcome these messengers of commerce and to finance both their incoming and outgoing cargoes.

"The foundation of an American financial structure extending throughout the world has been carefully conceived and securely laid, and the superstructure will follow as conditions become more favorable."

The establishing of branch banks abroad and, in certain countries, partnerships or affiliations with local banks, will help us to maintain our present position.

American Leadership.—We cannot expect our Allies to be able to repay on demand all the loans they owe the United States. But our relations with them will form the basis of no small part of the influence which we are destined to wield hereafter in international finances, so that, for instance, instead of British, French, Belgian, and German banking syndicates exclusively financing China or South American countries, and instead of international industrial groups composed only of Japanese, British, French, Swiss, and German concerns exploiting the resources

of those lands, there will certainly be American participants. Furthermore, the British, French, Japanese, and other foreign bankers will welcome us as their partners. As it is our duty to help them to-day as our Allies, so in the reconstruction period to come it will be our reward to have them recognize that our financial institutions are entitled to a fitting place in the world's finance.

If we are to maintain our hold on foreign markets and extend our international commerce we must become lenders of wealth on a large scale, for trade invariably follows capital abroad. It will be decidedly to our interests to help develop other countries and to promote their prosperity.

To do this we must develop within ourselves a broad spirit of enterprise which will comprehend the needs of the world itself. We must be actuated by high principles of humanity, so as to coöperate with other nations for a general prosperity and for common progress. Most important of all, there must be coöperation, thorough and constructive, within our borders between business and Government, including the diplomatic, executive, legislative, and judicial departments. Business must be freed from the shackles of false economics and selfish politics if it is to win supremacy abroad. Sanity, vision, and courage in largest measure are demanded.

Foreign investments in the future must not lead to territorial aggression or to the control of domestic politics and ultimately to the complete domination of the debtor nation. There must be no overrunning of small nations by unscrupulous larger and stronger nations; there must be no annexing of neighboring mine fields or conquering of border provinces, no colonial exploitation, and no imperialistic economic aggrandizement by any nation or government.

America's strength and influence—industrial, commercial, financial, and, if need be, military—must be pledged to the support of that program. Then, indeed, the world may be made safe for democracy—and democracy made safe for the world—and the progress of all peoples be thereby promoted.

PART IV

PROGRAMS, MONETARY AND FISCAL

XX

STABILIZING THE DOLLAR IN PURCHASING POWER

BY IRVING FISHER ¹

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THE FACTS AS TO PRICE MOVEMENTS

General Nature of the Question.—The great war, which in the public mind at first eclipsed the "high cost of living," has finally thrust it again into the foreground. Again we are witnessing world-wide complaint and again we are investigating and legislating on the subject. We are talking of food famines and of a supposed dearth of goods. We are talking of "inflation" brought about by issues of paper money, by expanding credit, and by inflowing gold. Sweden has practically demonetized gold. Price fixing is being tried on a vast scale, public opinion is aroused against the raising of prices, and drastic penalties have been enacted.

The present war will go down in history as probably the greatest destabilizer of price levels the world has ever known. People are gradually awakening to what is happening or beginning to happen. Unfortunately the public discussion which we are now witnessing shows bewilderment and confusion of thought. Yet never was there more need of straight thinking. Without it we may attempt the impossible or, like an infuriated mob, hang the wrong man to the lamp post.

¹ A. B. 1888, Yale; Ph. D. 1891; studied Berlin and Paris. Professor of Political Economy, 1898—; President of the American Economic Association, 1918. Author of works on mathematics and economics, particularly on the rate of interest and the purchasing power of money, and on hygiene and public health.

A professor once said to his students: "In beginning the study of any social problem, put to yourself four questions: What is it? Why is it? What of it? What are you going to do about it?" Accordingly I shall take up (1) the actual *facts* to be explained; (2) the chief *causes* which explain them; (3) the resultant *evils* which make a remedy desirable; and (4) the *remedy*—and this not only as to the present high cost of living but as to price movements generally.

Index Numbers.—The prices of various articles do not move together but scatter or disperse like the fragments of a bursting shell. Yet there is always a definite average movement just as there is a definite path of the center of gravity of the shell fragments. In order to depict the average movement of prices we must first have some way to measure it. A very simple way has been devised, called the "index number."

An index number is a number showing the average rise or fall of prices. Thus, if one commodity has risen 4 per cent since last month and another 10 per cent, the average rise of the two is midway between 4 per cent and 10 per cent, or 7 per cent. It is $\frac{4+10}{2} = 7$. If we call the price level of the two articles last month 100 per cent, then 107 per cent is the "index number" for the prices of the two articles this month. The same principle, of course, applies to any number of commodities.

Many different systems of index numbers are now before the public—such as those of Bradstreet, Dun, Gibson, the *Annalist*, the United States Bureau of Labor Statistics, the Canadian Department of Labor, the London *Economist*, the London *Statist*, and the British Board of Trade. The present index number of the United States Bureau of Labor Statistics covers 300 commodities. It is an interesting fact that throughout the ages, though prices have sometimes fallen, they have generally risen. In France prices before the war were four to six times as high as five hundred years ago and five to ten times as high as a thousand years ago.

After 1896 prices rose rapidly up to the outbreak of the war. But a much greater upward impulse was imparted by the war itself. The rise before the war, great as it was, amounted, on the average, in the United States, to only one-fifth of 1 per cent per

month, and in England to still less; whereas since the war the rise has amounted to $1\frac{1}{2}$ per cent per month in the United States, and much more in many other countries—in Germany and Austria to 3 per cent per month, and in Russia to $4\frac{1}{2}$ per cent per month. To these German and Russian rates, among the records of index numbers which have been computed, there is no parallel. If before the war we could become excited over a continued upgrade of one-fifth of 1 per cent per month, we may begin to understand the feelings of the Bolsheviki, confronted with an uphill movement more than twenty times as steep!

THE CAUSES OF PRICE MOVEMENTS

Some Erroneous Explanations.—Why is the price level always changing? In recent popular discussions a great variety of reasons have been assigned. I shall not discuss in detail the alleged explanations. While some of them represent important factors in raising particular prices, nevertheless only one of them, namely, the war (and foreign trade caused by the war), has been a large factor in raising the general level of prices, and this, of course, only recently. Obviously no explanation of a general rise of prices is sufficient which merely explains one price in terms of another price. To say that the cause of rising "prices" is rising "wages" is merely to say that the prices of commodities have risen because the price of labor has risen; and we might as well turn it about and say that the price of labor has risen because the price of food has risen and so driven workmen to strike for higher wages. Such explanations are as unsatisfactory as the answer of the gardener who, when asked, "Where is the hoe?" replied, "It's with the rake," and when asked, "Where is the rake?" replied, "It's with the hoe."

Scarcity will, in selected cases, go far toward explaining the rise of individual prices. But it will not go far toward explaining changes in the general level of prices—at least not before the beginning of the great war and only partly since that time.

All those who have offered explanations make one fatal mistake. They look at the wrong side of the market. They seek the causes wholly in the goods, the prices of which have changed, and not at all in the money, in terms of which those prices are expressed. It is hardly probable that commodities

should rise in price en masse without some simple explanation in common. This corresponds with common sense. We seldom have world feasts or world famines. If the corn crop is short in some places it is abundant in other places. If it is short in all places the crop of wheat or barley or some other staple food is practically certain to be at least normal. If there is war in Japan, it is not likely that there will also be war in Brazil. A world war or even anything as near to a world war as the present conflict is a most—*the* most—unprecedented event in all history.

Price Fluctuations Due to Money Conditions.—Our conclusion is that until recently, at least, it was a fall in the value of gold, or money, that had taken place, rather than a simultaneous rise in the value of everything else. We have direct statistics to indicate the same conclusion. These show that up to the outbreak of the war in 1914 there was no progressive scarcity of goods in general but rather an increased abundance, and that this continued to be true in the United States even after 1914, possibly up to our entrance into the war in 1917. Only during the war has there been, in this generation, a progressive scarcity of goods in general. Even during the war money inflation has been the more important factor.

That great price movements are chiefly monetary is evinced by the fact that countries of like monetary standards have like price movements. Thus—to consider gold-standard countries—there is a remarkable family resemblance between the curves representing the index numbers of the United States and England. Again, the price movements in silver countries show a strong likeness, as in India and China from 1873 to 1893. On the other hand, we find also a great contrast between gold and silver countries. Speaking roughly, we may say that between 1873 and 1896 the price level in gold countries fell 25 per cent and in silver countries rose 30 per cent.

In the present war the data are so meager that it is impossible to express the relations in exact figures, but we may arrange the different countries in the approximate order in which their prices have risen. As a result we find that the order of the nations corresponds, in general, with the order in which the currency in those nations has been inflated by paper as well as

with the order in which their monetary units have depreciated in the foreign exchange markets. This order—of ascending prices and of inflated currency—is: India, Australia, New Zealand, United States, Canada, Japan, Sweden, Switzerland, Denmark, Italy, Holland, England, Norway, France, Germany, Austria, and Russia. Confirmatory evidence is found in the fact that the ups and downs of prices correspond with the ups and downs of the money supply. Throughout all history this has been so.

The present war furnishes important examples of this. In the United States the curve for the quantity of money in circulation and the curve for the index number of prices run continuously parallel, the price curve following the money curve after a lag of one to three months, as might be expected, money being the cause and price the effect. It was in August, 1915, that the quantity of money in the United States began its rapid increase. One month later prices began to shoot upward, keeping almost exact pace with the quantity of money. In February, 1916, money suddenly stopped increasing, and two and a half months later prices stopped likewise. Similar striking correspondences have continued to occur with an average lag between the money cause and the price effect of about one and three-quarters months.

The conclusion toward which the foregoing and other arguments lead is that in the past the great outstanding disturber of the price level has always been money, and that at present the great outstanding cause of the high cost of living is money. It is curious that every time inflation of any kind has visited a country the public has had to be reëducated. The evils of colonial and continental paper money were forgotten by the generation of the Civil War, and the evils of the greenbacks are forgotten by most people to-day. At the present time we are confronted with still another kind of inflation, due not to specie but to the use of checks. In so far as we subscribe to our war loans out of money borrowed at the bank—that is, out of an increase of deposit currency and not out of real savings—we are adding to inflation and to its evil effect on the cost of living.

The Gold Dollar Fixed in Weight but Not in Purchasing Power.—Money is so much an accepted convenience in practice that it has become a great stumbling block in theory. Since we

talk always in terms of money and live in a money atmosphere, as it were, we become as unconscious of it as we do of the air we breathe. Some people, even intelligent people, bolster up the illusion that the dollar is a stable standard of value by reference to the fact that "the price of gold" never changes. Only recently a former Government officer asserted that the value of gold is evidently constant because its price is fixed!

I once asked a dentist if the "high cost of living" had affected the price of his materials.

"Yes, of course," he replied.

"Of the gold you buy for fillings?" I ventured jokingly, expecting him to know that this could not be.

To my surprise he answered, "I suppose so," and sent his assistant to look the matter up.

She returned presently and solemnly informed us that the price he paid for his gold was substantially the same now as it always had been during the thirty years he had been buying it.

"Isn't that surprising!" he exclaimed. "Gold must be a very stable commodity."

"It's just as surprising," I replied, "as that the price of a quart of milk is always two pints of milk."

"I don't see the point."

"Well, what is a dollar?" I asked.

"I don't know—what is it?"

That simple question is vital. The almost universal ignorance of the answer is chiefly responsible for the almost universal misunderstanding of the high cost of living! A dollar is 25.8 grains of standard gold—that is, of gold nine-tenths fine; and, since an ounce is 480 grains, the number of dollars in an ounce is $480 \div 25.8$, or 18.60. In other words, any 100-ounce lump of standard gold taken by a gold miner to the mint can be cut up and coined into 1860 dollars and handed back to him. Naturally he gets \$18.60 an ounce, and this "price" can never vary so long as the weight of the dollar does not vary.

Thus 100 ounces of gold will always be worth 1860 dollars of gold so long as 1860 dollars contain 100 ounces of gold; just as a quart of milk will always be worth two pints of milk so long as two pints make a quart. Gold is stable in terms of itself and in terms of itself only. Fixing the dollar at 25.8 grains of gold fixes the price of gold at \$18.60 an ounce. But,

of course, this fixity of dollar weight, or of gold price in terms of gold, does not fix its price or value in terms of other commodities. It does not release gold from the effects of supply and demand. The value of the dollar, as shown by its general purchasing power, is not stable but fluctuates with supply and demand as does the value (or purchasing power) of anything else. There is only this difference: Since a descending value of gold cannot lower the price of gold it must raise the prices of other things in terms of gold; and since an ascending value of gold cannot raise the price of gold, it lowers the prices of other things in terms of gold. The supply and demand of gold and of other things which affect the real value or purchasing power of gold cannot be thwarted. Since we deny to supply and demand of gold the normal outlet of raising or lowering the price of gold, they take their revenge by lowering or raising the prices of other things.

If, instead of gold, we were to make milk the standard, or eggs—that is, if we used these to purchase all other things—they would acquire the same fixity of price—that is, price in terms of milk or eggs; and we would fall victims to the same illusion of inherent fixity. If a dollar, instead of being 25.8 grains of gold, were, let us say, a dozen eggs, obviously the price of eggs would always be a dollar a dozen simply because a dollar is a dozen eggs. If the hens did not lay, the price of eggs would not rise (or vary at all), but, instead, the prices of other commodities in terms of eggs would fall; while if eggs were a drug on the market, their price would not fall (or vary at all), but the prices of other commodities, in terms of eggs, would rise—and the mystified public would then be inquiring gravely, "Why this high cost of living?" The world's prices would then be at the mercy of hens just as now they are at the mercy of mines.

We have been deceived by appearances in commerce just as we have been deceived by appearances in astronomy. The earth seems to be fixed and all the other heavenly bodies seem to move.

An increase of money, then, always tends to raise prices. It was thus that prices rose in the mining camps of California a half dozen decades ago and in Colorado and the Klondike one or two decades ago. This local rise of prices soon communicated itself to other places; for the price level cannot in one locality greatly exceed that in a neighboring locality without causing

an export of money to the locality of the lower level. Thus new money gradually finds its way into circulation throughout the world, raising prices as it flows from place to place, the process consisting, in all cases, of the effort on the part of somebody to get rid of an inconvenient surplus—a surplus which cannot be dissipated by transferring it from hand to hand but only by a rise of prices. Of course, the price level is affected not only by the quantity² of money. It is affected also by credit currency—that is, the so-called “money I have in the bank,” which one pays out in checks. Moreover, the price level is affected by the rapidity of circulation both of money and of deposit currency and by the amount of commodities in trade. The price level may rise because of an increase of money or of deposit currency, or because of their rapidity of circulation, or because of a decrease in the volume of trade. And back of these causes (money, deposits, their velocities, and trade) lie innumerable other causes acting through one or more of them.

THE EVILS OF PRICE MOVEMENTS

But what of it all? Even if the value of the dollar is constantly changing, is there any real harm?

If, for each one of us, the rise of income were to keep up exactly with the rise in cost of living, then the high cost of living would have no terrors; it would be merely on paper. But no such perfect adjustment ever occurs or can occur. Outstanding contracts and understandings in terms of money make them out of the question.

Unjust Transfer of Property.—Consider the debtor and creditor. If Congress should suddenly decree that each present “dollar” should henceforth be two dollars, it is clear that, in practice, the change would not be simply nominal, or a mere matter of bookkeeping. Every creditor, every bondholder, every bank depositor would clearly be cheated out of half his due. If, on the other hand, Congress should decree that what has hitherto

² There are still a few students of money who do not accept any form of the “quantity theory” of money. (Fortunately, however, the proposal here made for stabilizing the dollar is not bound up with this theory, although the theory is, I believe, when properly stated, correct.)

been a "dollar" should henceforth be fifty cents, every debtor would be suddenly saddled with a weight of debt twice as heavy as that which he had originally assumed. The same principle of hardship applies to any change in the purchasing power of the dollar even when, as is ordinarily the case, it is unintentional. Moreover, it cannot properly be said that human responsibility is not a factor. Congress, which, under the Constitution, has the power to regulate the value of money, lets that value go unregulated. With each change in the purchasing power of money (in other words, with each change in the price level) some people lose what properly belongs to them and others gain what does not properly belong to them. Our sense of "social justice" is offended.

Cheating of Savings Depositors and Bondholders.—Consider a working girl who put a hundred dollars in the savings-bank in 1896. To-day, if she has allowed it to accumulate at 3 per cent interest, she has two hundred dollars. But when she tries to spend her two hundred dollars, she finds that things cost about double what they did in 1896. Thus she gets for her entire two hundred dollars to-day only as much as she could have bought for her original one hundred dollars at the beginning. After a score of years of self-denial, where is her reward, her interest? She has been (without the intention of anybody) cheated out of all her interest through the depreciation of the "dollars" in terms of which her savings-bank account has been kept! Her interest accrued only fast enough to offset the depreciation in her principal. Like Alice Through the Looking-glass she has had to run as fast as she could in order to stand still! The bondholder is in the same plight. If he has been "living on his interest" the purchasing power of his principal has been decreasing, so that really, although without knowing it, he has been living on capital. To keep his capital unimpaired he would have had to reinvest *all* his interest!

The total financial interests thus affected by changes in the price level are colossal. Shortly before the war Alfred Neymarck estimated the total securities then circulating in the world at 175 to 200 billion dollars! Now, of course, the volume of securities is greater, and the war bonds promise to swell the total by 50 per cent. And besides negotiable securities there are many

private debts which never circulate. There are savings-bank deposits and deposits in ordinary banks running up into scores of billions. Scores of billions of dollars in insurance contracts of various kinds are in existence, many of them running for long terms, such as the span of human lives.

Since the fall of 1915 the dollar has suffered a loss of purchasing power of about 25 per cent per annum. Consequently bondholders owning titles to a fixed number of dollars have not only lost all of their interest of, say, 5 per cent but 20 per cent per annum of their principal besides! The total shift each year must now run up into many billions. At the end of this war millions of people in the United States will own Liberty Bonds; millions will hold War Savings Certificates; millions will be financially interested in the soldiers' insurance, the total of which is expected to exceed a score of billions of dollars, and all these people will be in addition to the millions who already hold savings in the banks or own mortgages or bonds. In Europe, of course, the shift between contracting parties has been even more rapid, because the depreciation of their money has gone on more swiftly. The net effect is really to filch the major cost of the war from the bondholders, old and new (including widows and orphans, colleges and hospitals, and Liberty Bond holders as well), and savings-bank depositors.

Suffering of Salaried Classes Is Cause of Unrest.—The salaried men and, to some extent, the wage earners suffer—that is, the cost is borne by those with relatively “fixed” incomes. With millions of people to be affected and hundreds of billions of dollars stipulated in contracts or otherwise fixed or understood, it becomes a matter of grave concern to the whole world what the “dollar” in these contracts and understandings is to be. When prices rise great profits are made, because, as we have seen, the “profiteer” or stockholder wins without effort from the bondholder and from the salaried and wage employees. His easy profits lead him to “extend himself” until, when interest charges, rents, salaries, and wages catch up, his prosperity ceases, he gets caught in debt and becomes a bankrupt, and a general crisis or even panic may ensue. Every rise in the cost of living brings new recruits to the malcontents who feel victimized by society and have come to hate society. They cite, in their indictment,

the high price of necessities and the high profits of certain great corporations, both of which they attribute, not to the aberrations of our monetary yardstick but to deliberate plundering by "profiteers" or a social system of "exploitation." They grow continually more suspicious and nurse an imaginary grudge against the world. We are being threatened by more quack remedies—revolutionary socialism, syndicalism, and Bolshevism. Radicalism rides on the wave of high prices.

When the history of this war is written, it may well be that we shall find that the growing popular unrest caused by the high cost of living, the atmosphere of suspicion engendered, and the desire for relief through a policy of commercial expansion had something to do in giving a pretext for, if not causing, the great war. In fact, before the war rising costs of living were manufacturing socialists all over the world, including Germany, and the German Government may have weighed, as one of the expected dynastic advantages of war, the suppression of the growing internal class struggle which this high cost of living was bringing on apace.

Fluctuations Produce Instability and Crises.—We have seen that the primary evil of these aberrations is social injustice, a sort of subtle pocket picking. At first glance it might seem that such a transfer is not a general evil, for what some lose others gain. But the secondary evils are very general, namely, the evils from speculation, uncertainty, crises, depression, resentment, violence, and ill-considered legislation. Thus, curiously enough, as with ordinary gambling, even the ill-gotten gains of the winners are largely swept away in the end. Thus, as at the present time, when prices are rising, the strikes, riots, and violence which are the secondary effects of rising prices destroy the profits of the winners by blocking the wheels of industry and even destroying its tools. If we are going to have discontented workmen smash our windows and our machinery, it is not so much a question of who is going to get the profits as a question of whether there are going to be any profits.

Similarly when, during a period of falling prices, the vampire is not the profit-taker but the creditor, the winner is also apt to lose his winnings. The bondholder is usually and normally the simple investor of capital, the "silent partner" in business. He lacks

the temperament and training to be a captain of industry. But, after years of falling prices, during which he has been draining, unobserved, the life-blood of the enterprise whose bonds he holds, until there is no profit left for the captain of industry who has been managing it, the mortgage is foreclosed and the captain, held responsible for the shipwreck, is forced out, discredited, humiliated, and unable to articulate or even to understand that it was not wholly his fault, if at all, but the fault of his instrument of reckoning, the dollar. Thereupon the bondholder is forced to take control. Thus the management drifts into wrong hands, turns into mismanagement, and the bondholder is hoist with his own petard. He has been an unconscious Shylock, exacting his pound of flesh until he has overreached himself. As David Harum wisely said, "It's not a bad idea to let the other fellow make a dollar once in a while." In short, almost no one gains long or gains much either from rising prices or falling prices. Either implies enormous social wastes. Therefore, to society as a whole, there is a great net loss, just as there would be from confusion and uncertainty in the yardstick of length or in the pound of weight.

THE REMEDY ³

We are now ready for the practical question, "What are you going to do about it?"

There are really two problems included in "the high cost of living"—(1) the problem of the number of dollars in our income and (2) the problem of how much each of these dollars will buy. The plan which I shall propose has reference to the solution of this second problem—the problem of the purchasing power of the dollar. Almost none of the other remedies for "the high cost of living" would have any direct or substantial effect on the general level of prices. I do not except price fixing, though from that the public is now expecting a great deal. The largest reduction effected through recent price fixing has been the reduction of 70 per cent in the price of steel plates; and this re-

³I find that, in most essentials of the plan described here, I have been anticipated by several others, including Simon Newcomb, the astronomer, and Alfred Russel Wallace, the naturalist. See "Objections to a Compensated Dollar Answered": *Am. Econ. Review*, December, 1914, and the prospective book referred to below.

duction, great as it is, has had almost no effect on the general price level. The index number of the United States Bureau of Labor Statistics, embracing three hundred commodities of which steel plate is one of the least important, is reduced thereby only one-third of 1 per cent! Even if we reduce the price of wheat and coal by 10 per cent the effect on the index number is only 1 per cent. When we remember that few reductions attempted through price fixing have exceeded 10 per cent and that the total number of articles affected is not large, being chiefly confined to a few individual foodstuffs, fuels, and metals, we shall realize that price fixing, however drastic and however useful for other purposes, can never greatly affect the general price level—that is, the price level of that inconceivably great and ponderous mass of goods which makes up our commerce.

Fix the Purchasing Power of a Dollar.—The real culprit being the dollar, the real remedy is to fix the purchasing power of the dollar.

I have in preparation a book on the subject ("Stabilizing the Dollar," Macmillan) which will go into more detail than is here possible. But the essence of the plan is very simple.

Our dollar is now simply a fixed weight of gold—a unit of weight, masquerading as a unit of value. A twentieth of an ounce of gold is no more truly a unit of value or general purchasing power than a pound of sugar or a dozen eggs. It is almost as absurd to define a unit of value, or general purchasing power, in terms of weight as to define a unit of length in terms of weight. We would scarcely define a yardstick as any stick which weighs an ounce. There used to be a song about a shopkeeper who, being asked the price of a box of socks, replied, "One dollar a box." "I'll take the box," said the customer, handing over his dollar; whereupon the shopkeeper took out the socks and handed over the box. "I sold you the box, not the socks," said he. Our dollar is somewhat like that box. It keeps its form but loses its contents. The removal, in this case, is not intentional or committed by one of the parties to the contract, but so much the worse!—for the injured party has no recourse. It is as if the buyer of the box of socks were forced to agree in advance to let a bystander remove or insert socks ad libitum.

What good does it do us to be assured that our dollar *weighs* just as much as ever? Does this fact help us in the least to bear the high cost of living? We complain of the dollar, and justly, that it will not go as far as it used to. We want a dollar which will always buy the same aggregate quantity of bread, butter, beef, bacon, beans, sugar, clothing, fuel, and the other essential things that we spend it for. What is needed is to stabilize or standardize the dollar just as we have already standardized the yardstick, the pound weight, the bushel basket, the pint cup, the horse-power, the volt, and, indeed, all the units of commerce except the dollar. All these units of commerce have passed through the evolution from the rough and ready units of primitive times to the accurate ones of to-day, when modern science puts the finest possible point on measurements of all kinds. Once the yard was defined, in a rough and ready way, as the girth of the chieftain of the tribe and was called a gird. Later it was the length of the arm of Henry the First, and still later the length of a bar of iron in the Tower of London. To-day we have at Washington a Bureau of Standards where the modern yardstick is determined by a bar of metal amalgam noted for its insensibility to changes in temperature but nevertheless kept in a room of constant temperature, under a glass case, and not approached by the observer, lest the warmth of his body should cause it to vary, but sighted through a telescope across the room!

Except the dollar, none of the old rough and ready units are any longer considered good enough for modern business. The dollar is the only survival of those primitive crudities. Imagine the modern American business man tolerating a yard defined as the girth of the President of the United States! Suppose contracts in yards of cloth to be now fulfilled which had been made in Mr. Taft's administration!

And yet the shrinkage in such a yardstick would be no greater than the shrinkage we have suffered in the far more important yardstick of commerce, the dollar; and this yardstick is used, not only in the few contracts in which the yardstick of length is named, but in all contracts of business! We tolerate our crazy dollar only because the havoc it plays is laid to other agencies. If its victims knew the truth about the dollar it would be put in a strait-jacket at the very next session of Congress;

for the evils of it—evils of confusion, uncertainty, social injustice, discontent, and disorder—are as vast as would be the evils if all the other units of commerce—the yardstick, the bushel basket, the hour of work, etc.—should be left to the tender mercies of chance.

And yet we tenaciously keep to that standard in the blissful assumption that it never varies, justifying this illusion by noting that the price of gold, in terms of itself, always remains \$18.60 an ounce, nine-tenths fine! We seem to like to humbug ourselves.

Any Single Commodity Is Too Variable a Standard.—A true standard of value, or general purchasing power over commodities, should not be dependent on one commodity merely, whether that commodity be gold or silver or wheat or what not.

Two commodities would be better than one, just as two tipsy men walk more steadily arm in arm than separately. Whenever they tend to lurch in opposite directions they neutralize each other. This is the argument which used to be urged for bimetallism, symmetallism, and other plans for uniting gold and silver. And the argument applies whenever gold and silver move in opposite directions, as from 1873 to 1896. If, for instance, a generation ago we had adopted a dollar of an amalgam⁴ consisting of half of the former gold dollar and half of the former silver dollar, our price level would not have suffered the rapid fall it did prior to 1896 in common with the units of other gold-standard countries, nor would it have suffered the rapid rise which the units of silver-standard countries experienced. It would have kept intermediate between the diverging price movements of gold countries on the one hand and silver countries on the other.

But such an amalgam of only two commodities, while in many cases it would be steadier than either and in all cases steadier than the less steady of the two, would not really be very steady. A composite of gold, silver, copper, platinum, and all the other metals would be somewhat more stable than an amalgam of two, just as a number of tipsy men can walk more steadily arm in arm than two only, it being wholly unlikely that all the men in the

⁴ A bill for this purpose was actually proposed in 1879 by Congressman Stephens. (Hepburn, "History of Currency in the United States," p. 288.)

line will lurch in the same direction at the same instant. The lurching of some in one direction can always be depended on to offset materially the lurching of others in the other direction. We can usually trust to luck if there is enough of it!

But why use metals? The index numbers of the United States Bureau of Labor Statistics show that the group of "metals and metal products," taken as a whole, is the most erratic of all the groups⁵ of commodities.

The Multiple Standard of Commodities.—In order to secure a dollar constant in its purchasing power over goods in general, it should, in effect, be a composite of those very goods in general. For instance, we might imagine a composite commodity dollar consisting of 2 board feet of lumber (made up of various kinds); $\frac{1}{20}$ of a bushel of wheat; $\frac{3}{4}$ of a pound of steers; $\frac{1}{2}$ of a pound of meat; 30 pounds of coal; $\frac{1}{100}$ of a barrel of white flour; 1 pound of sugar; $\frac{1}{2}$ of a pound of hogs; $\frac{1}{3}$ of a pound of cotton; $\frac{1}{3}$ of a gallon of petroleum; 1 egg; 1 pint of milk; 1 ounce of butter; $\frac{1}{30}$ of a bushel of corn; $\frac{1}{25}$ of a bushel of potatoes; $\frac{1}{100}$ of a pair of shoes; $1\frac{1}{2}$ pounds of hay; 1 ounce of hides; 1 ounce of tobacco at the farm; $\frac{1}{2}$ of an ounce of manufactured tobacco; $1\frac{1}{2}$ ounces of lard; $\frac{1}{2}$ of an ounce of leather; $\frac{1}{7}$ of an ounce of wool; $\frac{3}{4}$ of a pound of steel; 1 ounce of copper; $\frac{1}{10}$ of an ounce of rubber; $\frac{1}{300}$ of a gallon of alcohol; 2 ounces of soap.

These happen to be the relative quantities of some of the three hundred commodities used by the United States Bureau of Labor Statistics in making up its index number of prices. The entire list, of which the articles specified are the more important, was actually worth one dollar in 1909.

If at that time we had established such a dollar as our unit—that is, a composite dollar consisting of a big basket containing those three hundred bits of goods—that composite basketful of commodities—or "goods-dollar," let us call it—would evidently have to be worth a dollar at all times; and the cost of living—at least the cost of the representative assortment in that basket—

⁵ The groups are nine, namely: farm products; food, etc.; clothes and clothing; fuel and lighting; metals and metal products; lumber and building materials; drugs and chemicals; house furnishing goods; and miscellaneous.

could not rise or fall. That assortment would always cost a dollar simply because a dollar is that assortment. In short, it would be just as simple then to keep the price of the composite package of 300 commodities invariable (however widely its constituents might vary among themselves) as it is now to keep the price of gold invariable. The price of that composite would always be a dollar, just as to-day the price of gold is always \$18.60 an ounce, and just as, under an egg standard, the price of a dozen eggs would always be a dollar, and just as, with an amalgam of gold and silver, the price of that amalgam would be constant however much its constituents might vary relatively to one another.

Even this composite or goods-dollar might not be ideal and constitute an "absolute" standard of value, but no one will deny that it would be a great practical improvement over our present standard—just as great an improvement as it was, for instance, to adopt for the unit of length the length of the king's arm, instead of the girth of the chieftain of the tribe.

And this composite goods-dollar is not altogether a joke. I am going to suggest its adoption!

Perhaps some scornful reader is now eager to point out how inconvenient, not to say grotesque, such a dollar would be if it were in circulation or were used for export or import. With its 30 pounds of coal, it is far too heavy to carry; with its coal and wood and hay, it is far too bulky for the pocket; its solitary egg would spoil; while to divide a pair of shoes into a hundred parts would annihilate its value. Gold is to be preferred because it is imperishable, easily divisible, easily portable, and easily salable. And these are precisely the attributes which led us to select gold; and not, as some people mistakenly assume, any attribute of stability.

Gold a Medium of Exchange Used with a Commodity Standard of Value.—By all means, then, let us keep the metal gold for the good attributes it has—portability, durability, divisibility, salability—but let us correct its instability, so that one dollar of it will at all times buy approximately that composite basketful of goods. Money to-day has two great functions. It is a medium of exchange and it is a standard of value. Gold was chosen because it was a good medium, not because it was a good standard.

The argument that gold became money because it was thought

to be a good standard of value is, so far as I can find out, an unfounded myth. Indeed, when it came into use as money, there were no index numbers and there was therefore no way of testing its stability or instability; and finally at that time there was not much need and not much thought of a standard of value, for the good and sufficient reason that there were few if any time contracts, such as promissory notes, mortgages, or bonds. Almost all bargains were struck and settled on the spot. When a man was about to make a cash purchase it was immaterial to him what the monetary unit was.

But to-day if a man buys an article and promises to pay for it in three months the case is different. When the time for payment arrives it is very important for him to know whether the "dollar" is the same as was contemplated when the agreement was made. With our network of long-time contracts, running months, years, generations, or even centuries, including hundreds of billions of dollars in promises to pay money—promissory notes, mortgages, debentures, railway bonds, Government bonds, leases, etc.—the function of a standard of value—that is, a standard of deferred payments—has grown to be perhaps the more important of the two functions of money.

In short, because our ancestors found a good medium of exchange, we now find ourselves saddled with a bad standard of value. The problem before us is to retain gold as a good medium and yet to make it into a good standard; not to abandon the gold standard but to rectify it; not to rid ourselves of the gold dollar but to adapt it to the composite or goods-dollar. Under the plan here to be presented, gold is retained as the ultimate means of redemption. There is essentially the same mechanism by which gold freely enters or leaves the circulation. But under this plan the gold dollar will become a standard of value instead of a standard of weight. We now have a gold standard that is forever fluctuating. It is a gold standard with the "standard" left out! The proposal is really to put the standard into the gold standard—to standardize the dollar.

Vary the Weight of the Dollar.—The method of rectifying the gold standard consists in suitably varying the weight of the gold dollar. The gold dollar is now fixed in weight and therefore variable in purchasing power. What we need is a gold dollar fixed

in purchasing power and therefore variable in weight. I do not think that any sane man, whether or not he accepts the theory of money which I accept, will deny that the weight of gold in a dollar has a great deal to do with its purchasing power. More gold will buy more goods. Therefore more gold than 25.8 grains will buy more goods than 25.8 grains will buy. If to-day the dollar, instead of being 25.8 grains, or about one-twentieth of an ounce, of gold, were an ounce or a pound or a ton of gold, it would surely buy more than it does now, which is the same thing as saying that the price level would be lower than it is now.

A Mexican gold dollar weighs about half as much as ours and has less purchasing power. Certain South American dollars are still lighter and have correspondingly less purchasing power. A friend reports that in Colombia he paid fifteen dollars for a shoe shine. Now, if Mexico or Colombia should adopt the same dollar that we have and that Canada has, no one could doubt that its purchasing power would rise—that is, the price level in Mexico and Colombia would fall. If the heavier or the lighter the gold dollar the more or the less will be its purchasing power, it follows that if we add new grains of gold to the dollar just fast enough to compensate for the loss in the purchasing power of each grain, or vice versa take away gold to compensate for a gain, we shall have a fully "compensated dollar," a stationary instead of a fluctuating dollar, when judged by its purchasing power.

But how, it will be asked, is it possible, in practice, to change the weight of the gold dollar? The feat is certainly not impossible, for it has often been accomplished. We ourselves have changed the weight of our gold dollar twice—once in 1834, when the gold in the dollar was reduced 7 per cent, and again in 1837, when it was increased one-tenth of 1 per cent. If we can change it once or twice a century, we can change it once or twice a month!

Use Paper for Currency and Abolish Gold Coins.—And if we use paper representatives of gold exclusively, instead of some paper and some gold coins, these monthly changes in the weight of the gold dollar can be made even more easily than the occasional changes were made which history records. In actual fact, gold now circulates almost entirely through "yellowbacks," or gold certificates. The gold itself, often not in the form of coins at

all but of "bar gold," lies in the Government vaults. A bar of gold nine-tenths fine weighing 25,800 grains is just as properly to be called one thousand dollars of 25.8 grains each as if that bar were cut up into a hundred separate pieces and each were stamped into a ten-dollar gold piece. The thousand gold dollars already exist embedded or welded together in the gold bar, while the right of ownership in them circulates in the form of paper "yellowbacks." Since, then, even to-day most of our gold dollars do their circulating in the form of paper, what inconvenience would it cause if the only circulation of gold were in the form of paper? Most of the people in England who before the war carried gold in their pockets by preference have already been weaned from the habit; and most of the few Americans, in California and Oregon, who still do so will soon be weaned from it in the same way.

It would therefore be little more than expressing in law an existing custom if gold coins were abolished altogether. For simplicity, we shall assume that this has been done. When, therefore, I speak of changing, from time to time, the weight of the gold dollar, the reader need not conjure up visions of repeated recoinage or visions of gold eagles of various weights jangling together in confusion in the market place. Let him rather banish gold coins entirely from his mind and think of a dollar as simply a number of grains of gold bullion in the vaults of the United States Treasury, that number changing from time to time but always definite and specific at any time, and let him remember that in actual circulation this gold bullion is represented by yellowbacks.

The abolition of gold coin would make no material change in the present situation. Gold would, just as at present, be brought by the gold miner to the mint or the assay office or other Government depository, and he would, just as at present, receive paper tokens or yellowbacks in return. This sale of gold to the Government for yellowbacks—that is, this free deposit—is really the essence of the so-called "free coinage." It is thus that gold gets into circulation, through its representative, the yellowback.

Moreover, the gold in the Treasury would serve, just as at present, for the redemption of the gold certificates. The jeweler or gold exporter would, just as at present, obtain gold for his purposes by exchanging yellowbacks for gold at the Treasury. Every dollar of gold whose corresponding yellowback was thus

taken out of circulation would reappear as bullion in the arts or be added to foreign circulation. The process would therefore be virtually a flow of gold dollars, of fixed value but variable weight, from the circulation into the arts or abroad. Such exchange is the ultimate "redemption" of gold certificates. The usual object of redemption is either the export or melting of gold. The Scandinavian banks keep some of their gold abroad all the time, being allowed to count such gold as reserve. When someone presents notes to them in order to get gold to send to London he simply receives the ownership of some of the gold already in London.

Thus free coinage, or rather free deposit, and free redemption would go on substantially as at present, the one increasing and the other decreasing the volume of bullion certificates—that is, the virtual gold in circulation. The essential mechanism of our gold-standard system may be pictured as a lake of gold in circulation in the form of yellowbacks fed by "free coinage," or deposit by miners, and drained by free redemption, or withdrawal by jewelers and exporters.

If gold thus circulated only in the form of paper representatives it would evidently be possible to vary at will the weight of the gold dollar without any such annoyance or complication as would arise from the existence of coins. The Government would simply vary the quantity of gold bullion which it would exchange for a paper dollar—the quantity it would give or take at a given time. As readily as a grocer can vary the amount of sugar he will give for a dollar, the Government could vary the amount of gold it would give or take for a dollar. To-day the Government will give 25.8 grains of gold bullion to the jeweler or exporter for each dollar of certificates⁶ he pays in; next month it might give 26 grains or only 24 grains. These respective increases or decreases would of course be made for the purpose of compensating the decreases or increases in the purchasing power of the dollar.

⁶ The wording on the certificates would of course need to be slightly changed. They could no longer be properly called warehouse receipts, nor would they be exactly analogous to Government notes; they would be intermediate between the two. They might be described as "gold-dollar certificates." They would be redeemable at any time in the then official weight of the gold dollar—a variable weight but constant worth, instead of the converse, as at present.

Periodic Variation of Weight Based on Index Number.—But, it will now be asked, what criterion is to guide the Government in making these changes in the dollar's weight? Am I proposing that some Government official should be authorized to mark the dollar up or down according to his own caprice? Most certainly not. A definite and simple criterion for the required adjustments is at hand—the now familiar “index number” of prices. The Bureau of Labor Statistics, which now publishes an index number, the Bureau of Standards, or other suitable Government office, would be required to publish this number at certain stated intervals, say monthly. That is, each month the bureau would calculate from current market prices how much would have to be paid for our composite basket of goods. This figure it would publish and proclaim; and this figure would then afford the needed official sanction to the Secretary of the Treasury to change the rating of the gold dollar—that is, to change the amount of gold which the mint would give or take for a gold certificate, and thus increase or diminish the purchasing power of that certificate. The certificate would always be equal to the gold dollar; and the gold dollar would be kept equal to the goods-dollar, which is the ultimate standard. If, for instance, the index number representing the current price of our composite basket of goods is found to be 1 per cent above the ideal par—that is, above the one dollar price it had at first—this fact will indicate that the purchasing power of the dollar has gone down; and this fact will be the signal and authorization for an increase of 1 per cent in the weight of the gold dollar. For what is added to the weight of the gold dollar will be automatically registered in the purchasing power of its circulating certificate.

If you ask how I know that this 1 per cent increase in the weight of the gold dollar is just sufficient to drive the index number (or price of our composite basket of goods) back to par (or one dollar), I answer that I don't know, any more than I know, when the steering wheel of an automobile is turned, that it will prove to have been turned just enough and not too much. Many things may interfere in a month. But if the correction is not enough, or if it is too much, the index number next month will tell the story. Absolutely perfect correction is impossible, but any imperfection will reappear at the next date for adjustment and so cannot escape ultimate correction.

Suppose, for instance, that next month the index number is found to remain unchanged at 101. Then the dollar is at once loaded an additional 1 per cent. And if, next month, the index number is, let us say, $100\frac{1}{2}$ (that is, one-half of 1 per cent above par), the one-half of 1 per cent will call for a third addition to the dollar's weight—this time one-half of 1 per cent. And so, as long as the index number persists in staying even a little above par, the dollar will continue to be loaded each month, until, if necessary, it weighs an ounce—or a ton, for that matter. But, of course, long before it can become so heavy, the additional weight will become sufficient; so that the index number will be pushed back to par—that is, the circulating certificate will have its purchasing power restored.

Or suppose the index number falls below par, say 1 per cent below. This fact will indicate that the purchasing power of one dollar has gone up. Accordingly, the gold dollar will be reduced in weight 1 per cent, and each month that the index number remains below par the now too heavy dollar will be unloaded and the purchasing power of the certificate brought down to par. Thus by ballast thrown overboard or taken on, our index number is kept from wandering far from the proper level—that is, from the price of one dollar per composite basket of goods. In short, the adjustment, like all human adjustments, takes place "by trial and error." There is always a slight deviation, but this is always in process of being corrected. The steering wheel keeps the monetary automobile, not exactly in the straight line marked out, but always near it on one side or the other, so that its deviation will always afford the criterion needed for steering it back.

It does not matter in the least what the cause or causes of deviation may be. They may be connected with gold or bank credit or anything else. The deviation, no matter how caused, would bring a counterbalancing change in the gold dollar's weight and the change in that weight would go on every month as long as the deviation in the index number continued. The result is that the price level would oscillate only slightly. Instead of great price convulsions, such as we find throughout history, the index number would run, say 101, $100\frac{1}{2}$, 101, 100, 102, $101\frac{1}{2}$, 100, 98, 99, $99\frac{1}{2}$, 100, etc., seldom getting off the line more than 1 or 2 per cent.

The process of correcting the dollar has just been likened to testing an automobile. It might better be compared to the automatic regulation of the "governor" on a steam engine or to the method of securing a "compensated" pendulum. Every aberration brings its own correction. And so we conform our gold dollar, approximately, to the composite or goods-dollar. Each dollar of bank notes and other fiduciary money would, as now, be redeemable in a dollar of yellowbacks, and therefore such paper money would be, exactly as now, at parity with yellowbacks. Each dollar of these yellowbacks, or gold-dollar certificates, would, in turn, be redeemable at the Government offices in a good dollar in dollar and would, therefore, always be of equal value therewith, and finally, each dollar of gold bullion would, by periodic adjustment of its weight through an index number, be kept very nearly equivalent to the imaginary basket of goods described as the composite dollar.

All dollars, bank notes, etc., yellowbacks, and gold bullion would be absolutely equivalent to one another and would be approximately equivalent to the composite or goods-dollar. We would then be substantially rid of a fluctuating price level with its long trains of bad consequences. The monetary yardstick would at last be standardized.

To complete the statement of the plan, one proviso needs still to be mentioned. To avoid speculation in gold at the expense of the Government, a small fee, corresponding to what used to be called "brassage," should be charged to depositors of gold, and no single change in the dollar's weight should exceed that fee.

This is a technical detail and, with other technical points, such as the status of the reserve behind the gold-dollar certificates, the initial par of the index number, the selection and revision of the items making up the composite dollar, the possible retention of gold coins and coinage, etc., need not here be entered upon. What has been said is meant—and is enough—to show that we have the power, if we will but use it, to stabilize the purchasing power of the dollar and therefore to stabilize also the general level of prices.

CONCLUSION

Summary of Plan.—The plan, then, as above set forth, is, in brief:

(1) To abolish gold coins and to convert our present gold certificates into "gold-dollar certificates" entitling the holder to dollars of gold bullion of such weight as may be officially declared from time to time.

(2) To retain the virtual "free coinage"—that is, deposit—of gold and the free redemption of gold-dollar certificates.

(3) To designate an ideal composite goods-dollar consisting of a representative assortment of commodities, worth a dollar at the outset, and to establish an index number for recording, at stated intervals, the market price of this composite dollar in terms of the gold dollar.

(4) To adjust the weight of the gold-bullion dollar at stated intervals, each adjustment to be proportioned to the recorded deviation of the index number from par.

(5) To impose a small "brassage" fee not to exceed any one change in the gold dollar's weight.

The plan should, of course, start off with the price level actually existing immediately before its adoption. There would therefore be no shock in adopting the goods-dollar as our unit by varying the weight of gold bullion to represent that goods-dollar. In fact, there would be less shock than when we adopted standard time and changed our watches accordingly. Just as the time engagements of the whole world have been modified and simplified by the shift of watches from local to standard time, or, more recently, by the shift for "daylight saving," so the money engagements of commerce would all be put on a true standard without jar or confusion.

Substantially the same kinds of money would be passed from hand to hand as before the system was adopted, and the ordinary man would be quite unaware of any change, as unconscious, in fact, of the operation of the new system as he is now unconscious of the operation of the present system, or as were the inhabitants of India when the "gold exchange" standard went into force a quarter of a century ago.

The Essential Point.—The crux of the plan lies in the steering rule by which the index number regulates the dollar's weight. Its significance is that to keep the gold dollar from shrinking in value we make it grow in weight, thus recognizing that a depreciated dollar is a short-weight dollar; and reversely, to keep the

dollar from growing in value we make it shrink in weight, thus recognizing that an appreciated dollar is an overweight dollar.

Or again, since a heavier or lighter dollar simply means a lowered or raised price of gold, we may say that to keep the level of prices of other things from rising or falling we make the price of gold itself fall or rise.

At present, with a dollar always weighing 25.8 grains, the price of gold, nine-tenths fine, is always \$18.60 an ounce. However much gold may really depreciate, our artificially defined dollar creates an artificially fixed price. It does not allow gold depreciation to show itself in a lowered price of gold. Consequently it shows itself abnormally—in the raised prices of other things. It is, I submit, both wrong and absurd thus to force other things to register the fluctuations in the value of gold. When gold depreciates, its price should fall. Furthermore, when the price of anything else, say corn, rises, we ought to be able, as we are not now, to be reasonably sure that this rise represents a rise in that corn and not a fall in gold.

At present the Government is not authorized by law to mark gold down when it goes down and up when it goes up. The grocer can mark his goods up or down, incidentally including even the depreciation or appreciation of gold. He can increase or decrease the number of pounds of sugar he will give for a dollar. But the Government is helpless. When a flood of gold pours in from Cripple Creek or the Rand, or from war-ridden Europe, the Government is not permitted to increase the weight of a dollar's worth of gold above 25.8 grains or to decrease the price of gold below \$18.60 an ounce. Instead, therefore, there is a redundant currency and a "high cost of living." If, on the other hand, as may be the case after the war, exporters demand our gold, our Government is equally helpless to reduce the weight of a dollar's worth of gold below 25.8 grains or to raise the price of gold above \$18.60 an ounce, and a violent contraction of the currency will follow.

The system now operates spasmodically through additions to our currency by the miners and subtractions from it by the jewelers and exporters, all according to the vagaries of the gold supply and the gold demand. Thus do we leave our yardstick of commerce to the chances of the gold market and whatever influences affect that market.

The only classes which would notice the change as a result of the proposal would be the gold miners and importers of gold bringing gold to the mint, who would find that the price they could get would not always be \$18.60 per ounce, and the jewelers and exporters desiring gold bullion, who would find that the price they would have to pay to the Treasury would not always be \$18.60 per ounce.

A Fixed Standard Would Prevent Involuntary Theft.—Our National Constitution forbids the States to impair the obligation of contracts, and the National Government itself is supposed to conform to the principle of this prohibition (with certain exceptions, such as bankruptcy laws). But with our variable yardstick of commerce the conformity is, at best, to the letter, not the spirit, because the letter of the contract and the law fix the obligation in gold by weight, but the contracting parties are not concerned with what a gold dollar weighs; usually in fact they do not even know that a dollar is only a weight unit. The meeting of their minds is on the basis of what a dollar is worth in commerce, and they make little allowance for any change in that worth.

Thus, under the very protection of the constitutional provision mentioned, one of the parties to the contract always robs the other to some extent. This social pocket picking, unconscious but real, would, if our monetary yardstick were regulated, cease; and with it would cease also discontent, jealousy, and suspicion in so far as these grow out of that species of social injustice. Crises and depressions of trade would be reduced in their intensity, if not rendered impossible. The fundamental reason for much unsound speculation would be taken away.

The proposal here made is simply to authorize a raising or lowering of the sluice gates by which gold flows in or out, so as to keep our money lake at a uniform level. By increasing or decreasing the dollar's weight, we would thus be providing against either a flood or a drain of money. The plan would put a stop, once for all, to a terrible evil which for centuries has vexed the world, the evil of dislocating contracts and monetary understandings. All contracts, at present, though nominally carried out, are really tampered with as truly as if false weights and measures were used for delivering coal or grain. Business, now

periodically disturbed by the pranks of our mischievous dollar, would be put on a securer foundation than ever before; for the greatest and most universal uncertainty or gamble, all the more disastrous because unseen—the gamble in gold—would be removed.

After-War Significance of the Plan.—The whole question of monetary standards must come up for discussion soon after the war is over. History will repeat itself in some degree. Europe will almost certainly see a "greenback" party arise as we did after the Civil War, opposed to any return to the old metallic basis, especially as that return will double or quadruple the cost of paying off the war loans. The bimetallist and free-silver exponent also will probably appear once more. In fact, I am credibly informed that some silver interests are now preparing their propaganda and occasionally launching some of it.

There will also be the great international question: Whether or not to restore the old pars of international exchange, all or almost all of which have been severed by the war in one way or another. This being the case, shall we supinely leave our standard of value to drift, the puppet of circumstances, when we can so easily stabilize it? Are we going to let the value of our American dollar and the magnitude of our billions upon billions of dollars' worth of American contracts be the accidental result of unknown and unknowable European policies after the war? Are we forever to be at the mercy of conditions which we can not control? And be it noted that all the above-mentioned problems for Europe will be greatly simplified, if, for once, a really scientific solution of the problem of money standards is reached by one nation.

The world is now looking to us, as never before, for leadership. It is our golden opportunity to set world standards. If we adopt a stable standard of value, it seems certain that other nations, as fast as they can straighten out their affairs, resume specie payments, and secure, again, stable pars of exchange, will follow our example. After gold and silver fell apart in 1873, the nations, one after another, adopted the common standard of gold; and now, after the falling asunder of all the pars of international exchange from this world war, the new order will

probably be set by whatever nation first seizes the opportunity and takes the lead.

There is a further reason why the present is a golden opportunity. This is that we do not now have to consider the objection which existed before the war to one nation alone standardizing the dollar, namely, that it would embarrass our foreign trade by breaking existing pars of exchange. The pars have been broken already—even with England, though she has succeeded in “pegging” exchange at \$4.76 for the present. And most of these pars will probably remain broken for several decades to come, just as ours did, because of the Civil War, for the period of 1861-1878, or as the English did, because of the Napoleonic wars, for the period 1801-1821. It will be a surprise if before the middle of the twentieth century stable pars are again reached. Standardizing our own dollar will therefore not break pars of exchange but, on the contrary, will help foreign nations to make them again. And broken pars of exchange are of relatively slight consequence in any case. The important undertaking is to put our own internal commerce on a stable basis; and our internal commerce is probably a score of times as important as our foreign commerce.

From all standpoints, then, we now have the greatest opportunity of history to set and regulate the monetary standards of the world.

If We Miss the Chance.—If we do not do this, if we do not provide a really scientific remedy, if we take the ground that we must simply drift with the tides of gold and credit, that we are helpless to do anything to rectify or prevent in the future the great social injustices which history warns us will surely come, as between creditor and debtor, wage earner and employer, salaried man and profit-taker, we shall be simply fertilizing the soil of public opinion for a dangerous radicalism. Then surely some demagogue will flourish and offer an ill-considered remedy which will sweep everything before it. We shall then see, not a scientific study of a technical problem with a willingness of all parties to have an equitable settlement, but outraged justice will call forth revengeful effort and we shall witness a great selfish class struggle. Discontent, unrest, suspicion, class hatred, violence, charlatanism will follow, and even if a fairly satisfactory

settlement ever grows out of such unpromising soil there will remain a bitterness embedded in it which will not disappear for generations.

Even if our shifting dollar were guiltless of most of the offenses charged, even if the high cost of living of to-day had no relation to the dollar, there would still be excellent reasons for standardizing it—on the same general principle on which we have standardized all other units. Accordingly, a friend suggests that the plan be presented independently of the “cost of living” discussion, purely as a problem of weights and measures.

But the indictment will stand. The more the evidence in the case is studied the deeper will grow the public conviction that our shifting dollar is responsible for colossal social wrongs and is all the more at fault because these wrongs are usually attributed to other causes. When those who can apply the remedy realize that our dollar is the great pickpocket, robbing first one set of people and then another, to the tune of billions of dollars a year, confounding business calculations and convulsing trade, stirring up discontent, fanning the flames of class hatred, perverting politics, and, all the time, keeping out of sight and unsuspected, action will follow and we shall secure a boon for all future generations, a true standard for contracts, a stabilized dollar.

[The plan as here outlined has received the approval of a large number of economists and business men of influence, including President Hadley, of Yale University; a committee of economists appointed to consider the purchasing power of money in relation to the war (consisting of Royal Meeker, United States Commissioner of Labor Statistics; Professor Wesley Clair Mitchell, of Columbia University; Professor E. W. Kemmerer, of Princeton University; Professor Warren M. Persons, of Colorado College; Professor B. M. Anderson, Jr., of Harvard University and myself); Frank A. Vanderlip, president of the National City Bank of New York; George Foster Peabody, of New York; John Perrin, Federal Reserve Agent of San Francisco; Henry L. Higginson, of Boston; Roger W. Babson, statistician; John Hays Hammond, mining engineer; John V. Farwell, of Chicago; United States Senator Robert L. Owen; the late Senator Newlands; and Sir David Barbour, one of the originators of the Indian gold exchange standard.]

XXI

THE WAR AND INTEREST RATES

BY E. W. KEMMERER¹

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THE NATURE OF INTEREST AND ITS IMPORTANCE

Interest is an all-pervasive element in our economic life. The rate of pure interest is a price which expresses the extent of the market's preference for a given quantity of capital to-day over the present right to the same quantity of capital one year hence. It is an expression for the market rate of time preference, and in the fields of economic consumption and economic production it is as pervasive as time itself. Any economic process that requires time to be carried out, whether it is the utilization of a house by living in it, the cultivation of a field, the operation of a factory, or the maintenance of a railroad, involves also either explicitly or implicitly an interest rate. The present value of such an economic good is largely the capitalization at the market rate of interest of the anticipated values of future uses. Interest, furthermore, is the form in which is received a large part of the incomes of endowed institutions, such as educational, research, charitable, and religious institutions; also of widows, orphans, and others living on funded incomes. It is also the chief form in which are received the incomes of insurance companies and

¹ A. B. 1899, Wesleyan University; Ph. D. 1903, Cornell University; adviser to U. S. Industrial Commission, 1901; U. S. Philippine Commission, 1903; chief of Division of Currency of the Philippine Islands, 1904-6; Professor of Economics and Finance, Cornell, 1909-12, and Princeton, 1912—. Author of various works on finance.

banks. The influence of variations in the interest rates upon our economic and social life is therefore enormous.

There is no question but that the great war will have for many years important effects upon interest rates. A consideration of these probable effects and of the proper policy in dealing with them is the subject of this chapter.

THE ELEMENT OF THE MARKET RATE OF INTEREST

Pure Interest.—To simplify the discussion, it will be well first to break up the market rates of interest into their three elements, namely, pure interest, administrative expense, and compensation for risk of loss, commonly known as "insurance." The rate of pure interest is the *agio*, expressed in terms of a percentage of capital sum, which represents the market's preference for capital to-day over an assured right to the same amount of capital with value unimpaired a year from to-day. Pure interest assumes that the lender or investor can receive back on demand the exact sum advanced, together with accrued interest, without depreciation or appreciation, and that its collection will not impose upon him any expenses whatsoever. One would have a close approximation to pure interest in the case of a bond of a strong government having a small debt, if the bond were sold without commission, were payable in one year in terms of a currency whose purchasing power was absolutely stable, and were salable in the market at any time at par and accrued interest. If the rate of interest paid upon such a bond were $4\frac{1}{2}$ per cent, then $4\frac{1}{2}$ per cent would be the rate of pure interest. In the actual market, however, pure interest is never found dissociated from the other elements.

Administrative Expense.—The second of these elements is a charge for administrative expenses. Before making an investment a man needs to investigate the various propositions competing for his funds. Whether he investigates them himself or hires others to do it for him, he incurs an expense. There are also frequently expenses in the liquidation of an interest-bearing obligation either by collection or sale. These must be compensated for by higher market rates of interest. In certain types of loans, such as loans by pawnbrokers and small loans payable on the

installment plan made by Morris plan bankers, the chief element in the market rate of interest is this charge for administrative expenses. One reason why short-time securities often yield higher interest rates than long-time ones of equal safety is that the former impose upon the purchaser the trouble and expense of more frequent reinvestments.

Insurance.—The third element in the market rates of interest, and a very important one, is the factor of insurance against risk of loss. Bonds that pay high rates of interest proverbially involve large risks. The high rates are necessary to tempt the public to purchase securities whose purchase, in the judgment of the market, involves a substantial risk that the interest will not be paid and that the principal may be lost wholly or in part. Other things equal, the higher the market estimates the risk the higher will be the interest rate. The difference in the rate of interest paid by a United States Government bond and that paid by the highly advertised debentures of unreliable mining corporations consists largely of this factor of insurance. This insurance factor is commonly thought of as an extra allowance to compensate for the risk of losing one's interest and principal through the failure of the enterprise by bad management or otherwise to realize adequate profits.

Depreciation or Appreciation in Purchasing Power.—There is, however, another phase of the subject. It is the phase which is frequently discussed under the term "depreciation, appreciation, and interest."² Loans are expressed in money, principal and interest, and money itself in modern times has been very unstable in its value—that is, in its purchasing power over commodities. For the 22-year period from 1873 to 1895 the purchasing power of the gold dollar rose on the average (geometrical) about 2.1 per cent a year, so that the lender received, in addition to his regular interest each year and to the repayment of his principal at maturity, an average annual premium in purchasing power equivalent to 2.1 per cent of interest and principal. Between 1895 and 1913 the purchasing power of the gold dollar, on the other hand, declined on the average about 2 per cent a year. If one lets a house and it depreciates 2 per cent a year, the amount

² Cf. Irving Fisher, "The Rate of Interest," Chapter V.

received for contractual rent includes usually an amount equal to 2 per cent of the value of the property to cover depreciation. If, on the other hand, the property is appreciating 2 per cent a year, one may be willing to rent the house for a sum smaller by that amount than what would be the rent were there no change in the value of the property. The same principle should apply in the making of money loans. When the dollar is depreciating in purchasing power the interest rate should be higher, so as to compensate the creditor for the decline in the value of the unit in which the debt is expressed and paid, as principal and as interest; and vice versa, when the dollar is appreciating in purchasing power the interest rate should be proportionately reduced, so as to compensate the debtor for the more valuable unit in which he is called upon to make his payments. Obviously this item is usually negligible in the cases of demand loans and of loans with very short maturities. Inasmuch as future fluctuations in the value of the dollar cannot be easily foreseen, and as few people realize that they are taking place, deliberate allowances for depreciation and appreciation are not often made in money loans, as they are in the rental of other kinds of property. Unconsciously, however, some allowance is made in both directions, largely through the fact that rising prices stimulate industry, artificially increasing the demand for capital and therefore pushing up interest rates, while falling prices depress industry, lessen the demand for capital, and force down interest rates. These forces, however, normally compensate only a small percentage of the loss or gain resulting from the fluctuation in the purchasing power of the dollar.

The Method of Treatment.—In the light of these facts and elementary principles we may now consider the main topics of this chapter, which may be formulated in four questions:

- (1) What permanent changes are being brought on by the war?
- (2) What adjustments in our life will be necessary to meet these changes?
- (3) What purely temporary conditions are arising?
- (4) How can the difficulties of readjustment after the war be lessened?

PERMANENT CHANGES BEING BROUGHT ON BY THE WAR

The Increasing Use of Bonds of Small Denominations Leads to Lower Rates.—The influence of the war upon interest rates is chiefly an influence upon the size of the rates. As such, it is essentially a temporary one although it may have economic and social consequences of a permanent character. After the period of war readjustment is over, interest rates may be expected gradually to resume their pre-war level. However, there are certain minor effects which the war is having upon the crude or market rates of interest that are likely to be permanent. Two of them relate to the elements of administrative expense and insurance—the non-interest elements in the market rates of interest; and one of them relates to the rate of pure interest. A brief mention of these probable effects will be sufficient.

The administrative expense per \$100 loaned will be influenced by two opposing forces which the war is bringing into prominence. The first force is the war's influence in reducing the denomination of bonds. Liberty loans and war savings stamps, with their accompanying thrift campaigns, are educating the masses of the people to save and to invest their small savings in Government securities of low denominations. In the future the shift from Government securities of small denominations to non-Government securities of small denominations will be an easy one. After the war the man of small income is likely to invest in bonds much more than he did before the war. In this respect Americans will move in the direction of the people of France. Until recently the masses of the people in America have bought few bonds. Indeed, bonds have been the investment luxury of the rich, for comparatively few bonds have been issued in denominations of less than \$1,000. In France all classes of people have been in the habit of buying French rentes, which are issued in denominations as low as 100 francs;³ but the United States public debt for a generation and over or until recently has been held chiefly by banks and by

³"In the French ledger of public debt for 1913, holders of 3 per cent rentes totaled 4,443,904 and of these only 14,231 held allotments in excess of 1,000 francs. Those who held income warrants for 3 francs numbered 107,447; for 5 francs, 250,539; for 20 francs, 395,613; and for 30 francs, 663,747." Pamphlet issued by Guaranty Trust Company of New York on "France and America," 1917, p. 17.

a few wealthy individuals. All this the war is changing. Over nine million people subscribed to the second liberty loan, and nearly twice as many to the third one, and the overwhelming proportion of the subscriptions were for bonds of the denominations of \$50 and \$100. The Government war savings certificate stamps, which, with accumulated interest at maturity in 1923, will be worth \$5.00, and the thrift stamps of 25 cents each—stamps which together are being sold to the small investors in amounts running up to several million dollars daily—represent types of investments that will probably be permanent. The growth of our capital equipment is likely to be materially retarded by our participation in the war; and after the war we may expect railroad, industrial, and public-utility corporations and municipalities to compete for small savings by an ever-increasing resort to the issue of bonds of small denominations. These “baby bonds” have therefore come to stay. Even before the war the movement in their favor was slowly gaining momentum. What influence, if any, will their increasing use have upon interest rates?

The administrative expense of marketing a \$100 bond and paying the interest is almost as large as that of handling a bond of ten or one hundred times that denomination. But this administrative expense is of a type quite the opposite of those previously mentioned. It is an expense not to the lender but to the borrower. Upon which party it will ultimately fall will depend upon the relative strength of lender and of borrower in the investment market. The purchaser of \$100 and \$50 bonds, however, is the man of small means, and there is a strong presumption that in a large proportion of the cases the extra expense will be shifted to him in the form of a lower interest rate. Even before the war “baby bonds” usually sold on the basis of a smaller interest yield than the bonds of larger denominations. The movement therefore from large-denomination bonds to small-denomination bonds will probably have a slight tendency to reduce interest rates.

The Large Proportion of Government Bonds.—Offsetting this tendency, however, either partially or wholly, is another influence. That influence is the rapidly increasing proportion of Government securities among the investment securities on the

market. Since the United States entered the war its public debt has increased manifold, and it will probably continue to increase rapidly until peace is attained. The flotation of new public government securities has been restricted, and even when such flotations begin again after the war it will be a long time before the proportion of Government securities in the market will sink to anything like the low figure it represented before the war. Government securities are put out in large issues, and their administration is handled by Government officers and Federal reserve banks, with a minimum of expense. The deduction for administrative expenses from what would otherwise be the market rate of interest paid on Government loans is therefore likely to be a very small one. The increasing relative importance of Government securities in the market will accordingly tend to lessen the deduction for administrative expenses in the average market rate of interest and will therefore tend to push the rate up slightly. Whether or not on the average it will offset the extra expense to the borrower arising from the shift to bonds of smaller denomination it is impossible to say. At most, both influences are very small ones.

Increased Safety.—The second effect concerns the element of insurance. While Government bonds are not always safer investments than non-Government bonds, and while they will probably not stand in the matter of safety so much higher than the best railroad and industrial securities as they did before the war, it is a reasonable guess that United States Government bonds during the next generation will represent a higher standard of safety than the average of railroad, public-utility, industrial, and municipal securities competing with them in the market. Since Government bonds will represent a larger proportion of the total than ever before, the average safety of investment bonds bidding for the public's savings in America will probably be raised rather than lowered by the war. This is true despite the fact that the war is dealing heavy blows to the earnings and the credit of many so-called non-essential industries. The Government's taking over of the railroads is placing their securities upon a firmer basis. Many non-essential industries are adapting themselves to the manufacture of products that are essential to the war, and

the force of the war's blow to many other industries will be weakened by the operations of the War Finance Corporation.

The increasing importance of the small investor in the security market, brought about by appeals to patriotism and by the average man's innate desire to do his bit in a great cause, will mean that the Government will be compelled to take a greater interest in the protection of the small investor than ever before. The old idea, expressed in the vicious doctrine of *caveat emptor* in connection with the investment market, will find much less favor in the future than it has in the past. The public will cease to tolerate carefully planned campaigns of deception in the guise of circulars, news items, and other advertisements which are technically true but which in their effect are essentially false and misleading—advertisements of a type which a number of so-called investment houses have heretofore issued to the public with impunity to attract small savings, excusing themselves on the ground that the man who speculates or who buys without knowing what he is buying must expect to lose and has no one to blame but himself. The investments of the man of small means and consequently the advertisements luring him to invest will be looked upon as affected with a much greater public interest in the future than in the past, and this will be a wholesome permanent result of the war's discovery of the small investor in America. It will be a result that will tend to lessen market rates of interest through reducing the importance of the insurance factor.

All in all, it seems probable, therefore, that the insurance element in the interest paid on investment bonds will be reduced rather than raised by the war.

The Habit of Thrift.—There is likely to be one other permanent or at least long-time effect of the war on interest rates—an effect on the element of pure interest in the market rates. Frequent and extensive educational campaigns conducted during the period of the war to induce the public to practice rigorous economies in consumption and to invest all possible savings in the public debt will probably have a permanent influence in creating habits of thrift among the American people. Americans in the past have been proverbially wasteful and extravagant, just as the French have been proverbially economical and frugal. Edu-

cation in thrift secured and habits of saving and investment formed under the stress of war will survive the war, and their influence is likely to be felt for many generations. This means a rate of capital accumulation greater than that before the war, and consequently an influence in the direction of lower interest rates.

Summary.—The permanent effects of the war upon interest rates, we may conclude, are likely on the whole to be in the direction of reduced rates and therefore to be beneficial to the public. We may now turn from the permanent effects to the more temporary ones.

WHAT PURELY TEMPORARY RESULTS WILL THE WAR BRING ABOUT?

The Rise in the Rate of Interest.—It is in the field of temporary results that the war's effect upon interest rates will be greatest, and these temporary effects are likely to have consequences of far-reaching importance in our economic and social life.

The big fact to note is that the rates of interest on all kinds of obligations are being raised by the war. This applies to long-time loans and to short-time and demand loans. It applies to Government debt and to corporation and private debt. It applies to interest expressed in terms of money and to interest expressed in terms of purchasing power over commodities. It applies to pure interest and to market interest. These statements can all be substantiated by statistical evidence, but the limits of this chapter will prevent us from doing more in the direction of substantiating them than to give a few samples of the type of evidence available.

First let us consider the evidence as to money rates of interest on long-time obligations, and then on short-time paper.

Higher Yield of Long-term Bonds.—The Government's first liberty loan was floated at $3\frac{1}{2}$ per cent, but despite its complete tax-exemption privileges it has since sold as low as 3 per cent below par. The second loan was floated at 4 per cent, and the third at $4\frac{1}{4}$ per cent. The bonds of each loan went to a discount in the market shortly after their issue, despite the appeals to the patriotism of the holders not to sell their bonds and

despite the fact that the overwhelming majority of purchasers of bonds felt it to be their patriotic duty not only to buy the bonds but to hold them.

The *Annalist* has been publishing weekly since July, 1915, a chart showing the weekly fluctuations in the average price of 40 listed bonds. Taking the average quotations for the first weeks of the months by half-year periods, we arrive at the following results:

	1915	1916	1917	1918 (4 months)
First half year.....	.....	\$86.75	\$86.21	\$76.56
Second half year.....	\$83.83	87.58	80.40	.....
Year .....	.....	87.17	83.33	.....

West Shore Railroad fours of 2361, which have been used by Professor Wesley C. Mitchell ⁴ and others as a good representative of high-class investment bonds, gave the following net interest yields at average prices for the periods given below:

	Per cent		Per cent
1912.....	4.02	1917.....	4.71
1913.....	4.21	1917 (quarterly):	
1914.....	4.32	First	4.38
1915.....	4.43	Second	4.62
1916.....	4.38	Third	4.88
1916 (quarterly):		Fourth	4.96
First	4.35	1918 (first quarter)	5.11
Second	4.39		
Third	4.44		
Fourth	4.35		

The average price of twenty leading investment bonds as given in Babson's "Reports on Fundamental Conditions" declined from 93.4 for the year 1913 to 87.3 for the year 1917, and it declined from 91.0 for July, 1914, to 79.8 for March, 1918.

Taking these twenty bonds individually and also collectively and comparing their net yields at the prices quoted on or about

⁴ See W. C. Mitchell, "Business Cycles," p. 165 et seq.; also "Rates of Interest and the Prices of Investment Securities, 1890-1909," in *Jour. Pol. Econ.*, vol. 19, pp. 273-285. The figures here given for the years 1912-1915 were computed by Mitchell, those for 1916 were computed by David A. Friday, and those for 1917 and 1918 were computed by the writer.

THE WAR AND INTEREST RATES

401

March 1 of each year from 1914 to 1918, we arrive at the results given in the following table:

NET YIELD OF TWENTY REPRESENTATIVE RAILROAD BONDS AS OF A DATE ABOUT MARCH 1, 1914-1918

Highest-Grade Bonds	1914	1915	1916	1917	1918
(1) A., T. & St. F. gen. 4s of 1995.....	5.65	4.40	4.30	4.35	4.85
(2) B. & O. gen. 4s of 1948.....	4.30	4.75	4.50	4.45	5.60
(3) C., B. & Q. gen. 4s of 1958.....	4.35	4.55	4.35	4.30	5.00
(4) L. & N. un. 4s of 1940.....	4.35	4.55	4.35	4.35	5.10
(5) N. Y. Cen. 3½s of 1997.....	4.30	4.40	4.35	4.30	4.90
(6) N. & W. 1st 4s of 1996.....	4.25	4.35	4.35	4.20	4.85
(7) N. P. pr. l. 4s of 1997.....	4.20	4.50	4.35	4.35	4.95
(8) Penn. gt. 1st g. 4½s of 1921.....	4.35	4.50	4.15	4.10	5.70
(9) S. P. 1st ref. g. 4s of 1949.....	4.40	5.10	4.90	5.15	5.20
(10) U. P. 1st 4s of 1947.....	4.20	4.40	4.15	4.05	4.80
Average of 10 bonds.....	4.45	4.55	4.40	4.35	5.10
Second-Grade Bonds					
(1) A., T. & St. F. adj. 4s of 1995.....	4.60	4.85	4.65	4.75	5.15
(2) C. & O. gen. 4½s of 1992.....	4.75	5.00	4.40	5.20	6.05
(3) C., R. I. & P. gen. 4s of 1988.....	4.55	4.90	4.80	4.70	5.25
(4) C. & S. ref. 4½s of 1935.....	5.15	5.95	5.85	6.00	7.70
(5) D. & R. G. 1st con. 4s of 1936.....	5.30	6.05	5.90	5.60	7.50
(6) Erie con. m. p. l. 4s of 1996.....	4.65	5.00	4.75	4.90	6.00
(7) K. C. S. ref. 5s of 1950.....	5.10	5.80	5.55	5.80	7.05
(8) St. L., I. M. & S. gen. 5s of 1931....	4.75	5.05	4.85	4.80	5.55
(9) S. Ry. 1st con. 5s of 1994.....	4.75	5.05	4.90	4.90	5.40
(10) Va. Ry. 1st 5s of 1962.....	5.00	5.20	5.10	5.10	5.60
Average of 10 bonds.....	4.85	5.30	5.10	5.20	6.15
Average of all 20 bonds.....	4.65	4.90	4.70	4.75	5.60

All of the above evidence points to a substantial advance in interest rates since the period just preceding the outbreak of the European war. The greater part of this advance, however, it will be noted, has occurred since January, 1917. For the year 1917 and the year 1918 to date (April 13) the advance in the interest yield has been a continuous one. Average figures for the year 1914 as a whole are of little value, because of the strained and uncertain market which prevailed during the early months of the war—a time when the New York Stock Exchange was closed and the number of bond transactions was small. During the first half

of 1915 the general trend of long-time interest rates was upward, and during the second half it was downward. Babson's twenty bonds show a slightly increased average interest yield for 1915 over the first half of 1914; and our comparisons of the yields of these bonds as of March 1, 1914, and March 1, 1915, show an average increase from 4.65 per cent on the former date to 4.90 per cent on the latter. For 1916 there was little change in the interest yield. The average price of Babson's twenty bonds was almost identically the same for December, 1916, as for January, 1916, while the average yield of West Shore 4s was the same for the last quarter of 1916 as for the first quarter, although the second and third quarters had shown small advances.

Explanation of Stable Rates During 1915 and 1916.—The comparative stability of the interest yield on long-time securities during 1915 and 1916 was surprising to many and led some economists and bankers to take the position that the war would not cause an advance in interest rates. This optimistic delusion, however, was soon removed. The chief explanation of the failure of interest rates to advance sooner is to be found in the currency and banking situation. The first years of the war witnessed the inauguration and rapid development of the Federal reserve system in the United States, whereby bank reserve requirements were greatly reduced, and reserve money was made much more efficient.⁵ During the period under consideration, moreover, the Allies were making heavy demands upon us for war supplies and were sending us in return large quantities of securities and gold. It took time for us to absorb in the form of bank-credit expansion, even under the pressure of Europe's heavy demands for supplies, this large influx of gold, and at the same time to "take up the slack" in our bank credit caused by the greatly improved efficiency of our banking system under the Federal reserve law.⁶ The result was that a redundancy of money, which was being absorbed in expanding bank credit and rising prices, temporarily held down interest rates and gave a false appearance of a plentitude of capital. In other words, the real situation was being disguised by a camouflage of inflation.

⁵ For a discussion of this subject with statistical evidence, see E. W. Kemmerer, "Inflation," in *American Economic Review*, June, 1918.

⁶ For a fuller discussion of this subject see E. W. Kemmerer, *op. cit.*

There was, however, during these years, along with a great increase in the demand for American products, a large increase in the supply of American capital—an increase made possible by our heavy export trade in war supplies at war prices. Professor David Friday estimates the capital increases of the country during the four years 1913, 1915, 1916, and 1917 as follows, in billions of dollars:

1913.....	\$4.5	1916.....	\$12.6
1915.....	7.5	1917.....	16.8

Inasmuch, however, as this increased supply of capital in America was contemporaneous with a greatly increased demand, and was to a considerable extent at the expense of Europe, whose capital was being destroyed at an unprecedented rate, one cannot find in it a sufficient explanation for the failure of market rates of interest on long-time securities to advance in 1915 and 1916. As previously stated, the chief cause was currency and credit inflation.

We shall see later that the real increase in the net yield will probably be much larger than the figures so far given, taken by themselves, show; but even this increase is a matter of far-reaching importance. An advance from an average rate of 4.65 to one of 5.60 is an advance of 20 per cent. An assured perpetual income of \$465 a year, when the market rate of interest is 4.65 per cent, has a "present worth" of \$10,000, while the same income when the market rate of interest is 5.60 has a "present worth" of only \$8,304. An advance in the rate of interest as great as this obviously has a tremendous influence upon the tens of billions of long-time securities held in the United States.⁷

Higher Return of Short-time Loans.—Before considering the important factor of depreciation and appreciation in connection with these changes in the long-time interest rates, let us take a glance at a sample of the evidence as to the recent changes in the market rates of interest on obligations running for shorter periods. Short-time loans have an advantage to the lender over long-time

⁷ Shortly before the war the economist Alfred Neymarck estimated the total securities then in the world's market at 175 to 200 billion dollars. The volume of securities is of course much greater now as the result of the large increase in Government indebtedness resulting from the war.

404 AMERICAN PROBLEMS OF RECONSTRUCTION

loans in that they give him a larger control of his capital, and this is an advantage of real importance in times like the present, when interest rates are rising and when the uncertainties of the future are so serious. Short-time loans, moreover, as previously pointed out, eliminate largely the item of probable depreciation or appreciation in the value of the monetary unit during the period of the loan contract. As representatives of short-time loans, we may take sixty to ninety day two-name prime commercial paper and six-month time loans. The average rates of interest on these two types of paper by quarterly periods from January 1, 1914, to April 1, 1918, are given in the following table:

INTEREST RATES IN NEW YORK CITY, BY QUARTERLY PERIODS, 1914 TO 1918^a

	60 to 90 Day Two-Name Prime Commercial Paper	Six-Month Time Loans
1914		
First quarter.....	4.19	4.05
Second quarter.....	3.81	3.17
Third quarter.....	5.78	6.03
Fourth quarter.....	5.45	5.16
Year	4.84	4.59
1915		
First quarter.....	3.66	3.35
Second quarter.....	3.68	3.23
Third quarter.....	3.36	3.23
Fourth quarter.....	3.11	2.98
Year	3.44	3.19
1916		
First quarter.....	3.12	3.01
Second quarter.....	3.28	3.38
Third quarter.....	3.70	3.82
Fourth quarter.....	3.58	3.70
Year	3.42	3.47
1917		
First quarter.....	3.89	3.73
Second quarter.....	4.73	4.62
Third quarter.....	4.91	5.04
Fourth quarter.....	5.44	5.68
Year	4.75	4.77
1918		
First quarter.....	5.70	5.88

^a All rates are the average of the mean weekly rates for the weeks ending Friday. They have been compiled from the *Financial Review* of 1917 and the *Commercial and Financial Chronicle*, 1917 and 1918.

The table seems to justify the following generalizations. Although during the early months of the war the interest rates for both kinds of paper stood at much higher levels than previously, they receded to approximately the pre-war level by the first quarter of 1915. They showed a downward tendency throughout 1915 and during the first half of 1916, but since the first quarter of 1916 (except for a small reaction in the fourth quarter of that year) the rates on both classes of paper have moved continually and substantially upward. For commercial paper the average rate rose from 3.12 per cent in the first quarter of 1916 to 5.70 per cent in the first quarter of 1918, representing an increase of 80.3 per cent, while for the same period the average rate for six-month time loans increased from 3.01 to 5.88 per cent, representing an increase of 90.5 per cent. Since the United States entered the war every quarter has shown an increase in the average rate for each class of paper. The failure of short-time interest rates to advance earlier was due largely to the causes just discussed in connection with long-time rates. During periods of such great uncertainty as to the future short-time rates are likely to lag behind long-time rates on an advance because of the desire of capitalists to keep control of their funds "until they see what is going to happen."

CHANGES IN THE PURCHASING POWER OF THE DOLLAR

An important factor in the interest rate is the one previously discussed, namely, prospective changes in the value of the monetary unit in which the interest-bearing contract is expressed, during the period covered by the contract. In the ordinary rental contract, it was noted, prospective depreciation and appreciation are deliberately allowed for, but not so, usually, in purely money contracts. A man who lends \$1,000 for a period of five years at 6 per cent per annum is renting 1,000 units of money for five years at \$60 a year. It is true that the principal he receives back at the end of five years does not consist of identically the same dollars that he lent, but it consists of the same number of dollars. In the meantime, of course, he has turned the dollars into goods and has had the use of the goods. The lender allows in the interest rate for his estimated risk of losing the principal, but he rarely asks himself if the \$1,000 he is to receive back at

406 AMERICAN PROBLEMS OF RECONSTRUCTION

the end of the five years and the \$60 interest he is to receive each year will be as good dollars as the ones he lent. The goodness of the dollars to him of course depends upon the quantity of goods they will buy. How often does the lender ask himself what will be the probable depreciation or appreciation in the purchasing power of the dollar by the time he gets his dollars back?

Let us apply this principle to the situation in the United States since the beginning of the European war. These four years, or, more correctly, the last two of them, have witnessed a tremendous rise in prices in the United States. The United States Bureau of Labor Statistics' index numbers of wholesale prices covering nearly three hundred commodities show an increase of 75 per cent from 1913 to 1917, the average annual figures being as follows:

1913	.....100
1914	..... 99
1915	.....100
1916	.....123
1917	.....175

These figures show a decline in the purchasing power of the dollar in four years of 43 per cent. In other words, if the dollar of 1913 (or that of 1915) is considered as a 100 per cent dollar, then the dollar of 1917 is a 57 per cent dollar. Apportioning the decline in purchasing power over the four-year period, we find an average annual depreciation of 11 per cent, computed arithmetically, and of 13 per cent, computed geometrically. These rates of depreciation are obviously about twice as large if we apportion the depreciation only over the two years 1916 and 1917. For the eighteen-year period 1895 to 1913 there was an average annual depreciation of 1.7 per cent, computed arithmetically, and of 2 per cent, computed geometrically. If we assume that had the war not taken place the same annual rate of depreciation in the dollar would have occurred as occurred for the average year 1895 to 1913, we arrive at an average annual depreciation of the dollar due to the war of 9.3 per cent, computed arithmetically, and 11 per cent, computed geometrically. The latter figure is the more scientific one. It is this depreciated dollar that we are paying to the Government in the purchase of liberty bonds, and it is this dollar that the Government has been using to buy war supplies at high and rising war prices. How long the dollar will

continue to depreciate under war influences no one knows, for no one knows how long the war will last, nor what measures our Government will take to control inflation and otherwise to fix prices.⁹

Causes of the Declining Purchasing Power of Money.—The evidence points strongly to the fact that the rise in prices from 1895 to 1913 was due primarily to the world's large and increasing gold production¹⁰ and secondarily to the increasing efficiency of our credit mechanism, and that since August, 1914, the rise has been due principally to paper-money and deposit-currency inflation—chiefly paper-money inflation in continental Europe and deposit-currency inflation in the United States and England. Inflation in any one country, it should be observed, tends to cause inflation in all other countries with which the first country is carrying on active trade. Heavy issues of paper money, for example, in one country tend to drive gold out of that country, under the principle of Gresham's law, and the receipt of this gold into the bank reserves and active circulation of other countries in turn tends to cause inflation in them. In this connection it is significant that the net importations of gold into the United States from August 1, 1914, to March 15, 1918, have been over a billion dollars—a sum equal to nearly two-thirds of the total gold circulation of the United States when the European war broke out. From 1913 to 1917 the physical volume of business done in the United States (measured by bulk and not by value) is estimated to have increased 21 per cent, the currency circulation increased 45 per cent, gold in circulation increased 76 per cent, bank deposits in commercial banks 68 per cent, and bank clearings 81 per cent. During the same period the average cash reserve against deposits in commercial banks fell from 11.7 to 10.6 per cent.¹¹

⁹ There has been little advance in prices since the summer of 1917. Whether this is merely a temporary cessation of the upward movement of prices or a permanent one, time only can tell. The evidence afforded by the statistics of currency and credit inflation makes it appear that further advances are probable.

¹⁰ See, on this subject, E. W. Kemmerer, "Why It Costs You More to Live," in "How to Invest When Prices are Rising," G. Lynn Sumner & Co., Scranton, Pa., 1912.

¹¹ Detailed figures concerning inflation will be found in the writer's article on "Inflation," previously cited, in the *American Economic Review*, June, 1918.

Influences Governing Interest Rates After the War. When the war is over and our currency and credit supply is forced back to more normal proportions, as it probably will be, by a slow contraction of paper money and of deposit currency, and by the "growing up of business" to meet the slowly declining supply of currency and credit, prices will probably move back toward their pre-war level, as they did after the Civil War.¹¹ Inasmuch as prices were rising before the European war broke out, and as the contraction of the supply of currency and circulating credit is likely to meet strong opposition on the part of the debtor classes, of many business interests, and of certain other interests, the after-war recession of prices is likely to be both tardy and incomplete. When it will begin and how far it will go it would be rash to attempt to say. I believe, however, in the light of monetary theory and of our own Civil War experience, that it is reasonable to expect a considerable recession of prices within a few years after peace is declared. Of course there is a possibility that some action may be taken within a few years in the direction of stabilizing the value of the dollar, and this would fix the price level at the place where it stood at the time the plan was put into operation. The bonds of the first liberty loan mature in 1947, those of the second in 1942, and those of the third in 1928. It seems probable, therefore, that the interest on all these bonds will be paid during a number of years in a more valuable dollar than that loaned to the Government, and that the dollar will have a larger purchasing power at the time of the maturity of the bonds than it now has in these times of highly inflated currency and circulating credit, when the bonds are being floated. In other words, there is a strong prospect that the bondholder will receive a purchasing-power interest substantially larger than the money rate of interest called for by the bonds that are being floated during the period of the war. This applies to both Government bonds and corporation bonds.

Whether or not, however, the purchasing power of the dollar will rise a few years after the war is over, thereby adding to the (money) rate of interest a substantial *agio in purchasing-power interest*, it is clear that the interest rate has already risen since

¹¹ For a discussion of our experience in this regard after the Civil War see Wesley C. Mitchell, "The Greenback Standard," *chart and facing page 260*.

1916, and there is a strong prospect that the forces which have made the rate of pure interest rise during the last two years are forces that will continue in operation at least for some time after peace is in sight. Those forces are, first, the tremendous demand for immediate war equipment, and, second, the great depletion of the man force available for the production of this equipment. The war's demands are peremptory, and the meeting of them promptly is imperative. To that end, from the economic point of view, the present is the all-important time. The future is of secondary importance. For the preservation of democracy no economic sacrifice is too great, in the form either of the enjoyable goods of this generation or of the capital equipment we are to pass on to the next generation. But the war for democracy must be won or lost during a very brief period, and that critical period is now. This means an overwhelming emphasis upon present goods as contrasted with future goods—present goods that are conducive to the winning of the war. It means an unprecedented demand for goods of particular kinds. It means also that those goods must be produced under very heavy handicaps. Millions of our most efficient men are taken to the front, and our labor supply is curtailed. Business is disorganized by a reduced and changing labor force and by a shifting of the country's economic demands. War is a time of haste, and war does not annul the old maxim that "haste makes waste." The non-essential industries must be curtailed and many of them discontinued altogether in order to release labor and capital for essential industries. The building of new capital equipment, except that demanded for war needs, must be practically suspended. Even the maintenance of much existing equipment not needed for war purposes must, to a substantial extent, be sacrificed. The serious business at hand demands that we concern ourselves almost exclusively with the present, namely, with the winning of the war, and that for the time being we devote little of our limited energies to economic production for the after-war future. When the war is won there will be time for that. To-day's task is the military present; to-morrow's will be the economic future. All this means a big premium upon present goods in terms of future goods, a large and increasing demand for capital in the face of a probably declining supply. This is the stuff out of which high interest rates are made.

As soon as the Allies win the war, the insurance element in the market rate of interest in Allied countries will decline, but the depleted capital equipment and the urgency of the need for economic reconstruction, both at home and abroad, are likely to prevent any decline in the pure rate of interest for some years after the war. The market rates of interest, therefore, will presumably maintain themselves at high levels for some years.

RESULTS OF ADVANCES IN RATES OF INTEREST

These higher rates of interest will have economic and social results of a far-reaching character. A few of the more important of them may be briefly mentioned. (1) Higher interest rates are imposing a serious though temporary burden upon savings banks and other institutions, the present value of many of whose assets, notably bonds of long maturities, is dwindling, while the liabilities either remain unaffected or are reduced less than proportionately. Higher market rates of interest are in danger of attracting depositors away from these banks at just the time that depreciating assets are making it the more difficult for them to meet their obligations. Of course as the bonds mature and are paid off or renewed at higher rates of interest the difficulty is solved. There is, none the less, for many such institutions a trying period of transition. (2) Higher rates of interest in themselves benefit institutions and persons living on fixed incomes when their investments are made after the interest rates have risen. This advantage, however, is largely if not entirely offset in cases like the present, where a rise in the interest rates is accompanied by a great rise in prices. An institution, for example, which converts a million dollars' worth of maturing 4 per cent bonds into a million dollars' worth of 5 per cent bonds gains nothing if the prices of the things it buys rise at the same time 25 per cent. If prices, however, subsequently decline before the bonds mature, there is obviously a net gain. (3) Closely related to the two points just mentioned—in fact, merely another phase of the same general subject—is the third point. Advancing rates of interest tend to lessen the market value of real estate and of other physical goods of a highly durable character. A piece of agricultural land, for example, that yields a net income,

above all expenses of operation and maintenance, of \$5,000 a year and gives every prospect of continuing to do so for the indefinite future may be worth \$100,000 when the interest rate is 5 per cent but will probably decline to a value in the neighborhood of \$83,333 if the rate of interest rises to 6 per cent. In case the advance in the rate were looked upon as a temporary one, the decline would of course not be so great. Such an advance in the rate of interest from 5 per cent to 6 per cent would mean that the owner of such a farm in borrowing money against a mortgage upon his property would be compelled to pay a higher rate of interest and at the same time would suffer a reduction in the amount he would be able to borrow, since his collateral would be less valuable. (4) The higher rates of interest become increased items of expense in the production of goods, since expenses for interest are items of cost, either explicit or implicit, in the production of goods. (5) Many kinds of capital equipment are unprofitable to use when interest rates are high that would be profitable to use were interest rates low. There is accordingly a shift from the use of highly durable and expensive machinery and plant to the less durable and cheaper type. When the interest rates are high it becomes unprofitable to tie up present resources in highly durable goods, many of whose usufructs will not be obtained for years to come. Present resources are too valuable to be locked up for a distant and prospectively richer future. (6) A higher rate of interest is not only a sign of scarcity of capital, but it is also an increased reward for its accumulation. It encourages the saving which is the means to the replenishment of society's depleted capital.

These are only a few of the more important results of a rise in the rate of interest. They are obviously not distinct but closely interrelated. In some respects the results are good; in others they are bad. On the whole, however, it will probably be agreed that a country prospers more with a plenitude of capital and with low rates of interest than with a scarcity of capital and high rates of interest.

WHAT SHOULD BE OUR NATIONAL POLICY?

What, if anything, can be done to retard the upward movement of interest rates and to lessen the evils which that movement

threatens to cause? An attempt briefly to answer this question will constitute the last section of this chapter.

Broadly speaking, our national policy as regards the problem presented by a rising interest rate should be to retard its advance, in so far as that can be done consistently with the most effective prosecution of the war, and to prevent the necessary burdens it creates from bearing too heavily upon the institutions and persons who are least able to bear them. Let us consider these two proposals separately.

What can be done to retard advancing interest rates? The answer is, make the most efficient use possible of existing equipment, so that our equipment after the war is over will be depleted no more than is necessary below what it would have been had the war not taken place. Among the methods of doing this the following may be suggested: (1) Bring pressure upon the public to cut down drastically the consumption of luxuries and other non-essentials, so as to cause the maximum production of war supplies and thereby to shorten the war. It is better in a period of national emergency to sacrifice articles of consumption than instruments of production, although the cutting down of consumption necessarily reacts upon the value of the machinery of production of the articles whose consumption is curtailed. Much of the labor released, however, can be utilized for the production of essentials, and a considerable part of the equipment may often be adapted to war purposes. The curtailment of the consumption of non-essentials may be brought about by vigorous campaigns of education, by restriction upon the granting of bank credit to non-essential industries, by restrictions on loan flotations for such industries, and by priority regulations in matters of transportation, the supplying of fuel, and the like. (2) Utilize existing plants and machinery so far as possible for the manufacture of war supplies. In other words, wherever practicable and to the extent practicable, adapt the plants of non-essential industries to the production of war essentials instead of creating entirely new establishments.¹⁸ (3) In the construction of plants,

¹⁸ Mr. H. Gordon Selfridge, of London, in an article prepared for the use of the National War Savings Committee at Washington says that the drastic curtailment of certain lines of production in England to make way for war business has "merely resulted in a shifting of labor

machines, etc., for war purposes, have an idea to their adaptation after the war to the production of goods needed in time of peace. This means the utilization of standardized machinery, interchangeable parts, and the like. We should avoid as far as possible the necessity of scrapping after the war the expensive equipment we are now building up for the production of war supplies. When peace is attained not only the soldiers but the munition factories should be transferred with the minimum of expense and disturbance to the pursuits of peace. (4) During the period of the war and for some time afterward we should avoid the building of costly structures whose usufructs will come in the distant future. The immediate need for extensive reconstruction will be too urgent to justify the projecting of our labor and material resources into uses so far distant in time. For a few years after the war our economics must be that of a comparatively new country. (5) We should avoid the wastes of undue competition and make our capital more effective by greater centralization under Government supervision and control. A better organization of capital will go far to offset the losses due to a relatively smaller capital supply.

To prevent the burden of higher interest rates from bearing too heavily upon those least able to bear it will require positive action by the Government. The burden is one imposed by a program undertaken for the public good, and it should be distributed widely rather than placed upon the shoulders of a few. To this end much should be accomplished by the newly established War Finance Corporation, one of whose duties is to help finance worthy institutions and concerns during the trying period of readjustment brought on by the war.

Economies in consumption, however, let us repeat in conclusion, are as important as economies in production. For some

and business activity from the less essential to the vitally essential industries. To give a few illustrations: Phonograph factories are now turning out delicate shell parts, jewelry makers are producing periscopes, watchmakers are adjusting fuses, music-roll makers have turned to gage making, a baking-machinery plant is manufacturing high-explosive shells, a cream-separator factory is making shell primers, glaziers are making cartridge clips, a baby-food factory is producing plugs for shells, [and] the output of a textile machinery plant is now field kitchens." Quoted in *Commercial and Financial Chronicle*, March 30, 1918, p. 1296.

years to come it is urgent that the people restrict rigorously their consumption of luxuries, hold down their standards of living, and *save*. Savings are the raw material out of which capital is built, and interest rates will not fall far until capital becomes plentiful.

XXII

NATIONAL THRIFT

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Larger Aspects of Thrift.—The relation of thrift to after-the-war reconstruction is evidently intimate and essential. In the larger meaning of the word, thrift includes practically all the elements of constructive social development. It includes saving not only in the simple sense of avoiding unnecessary consumption but in that of conserving and utilizing in the best manner. In this meaning, thrift applies to the effective, advantageous employment of labor as well as to watchful attention over the family expenditures. There is good reason to believe that if in every department of production the efficiency of all labor were raised to the standard of the best present practice, the industrial output of this country would be doubled. Experienced industrial managers of wide observation go so far as to say that it would be quadrupled, but if it should be increased 25 per cent, or even 10 per cent, by simply doing our work by better methods, all the cost of the war would be soon made up. If, therefore, the war compels us or induces us to make a study of the application of labor to our resources by the most effective means and of its conservation by applying it to those branches of industry in

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which it will be of greatest service to the community, the result will be to set society in wealth, comfort, and productive powers far ahead of what it was before. We would not choose to have war as a means of social advancement, and war accomplishes nothing which might not be accomplished under peaceful conditions, but it lifts society out of the routine; and, if we are quick to see the lessons it teaches, changes may be made more rapidly than in normal times.

We do not ordinarily apply the word "thrift" to business policies, but rather confine it to personal habits; but it will emphasize the importance of thrift and dignify the habits and means by which it is practiced to show the larger results that come from it and the relation between such personal habits and the welfare and progress of the whole social body.

Its Social Significance.—The beginnings of social progress are in thrift. There must be something saved from immediate consumption and applied to improving the means of production. Labor is withheld from work where it would produce direct results and applied instead to making a wagon, a plow, or a ship, which will promote industry or trade in the future. Each new achievement of this kind becomes the basis for further advancement, rendering it possible to devote more time and labor to the improvement of individual skill or of methods. But to maintain this forward movement there must be a constant exercise of the intelligence and a resolution to deny and to do without, to-day, for the sake of having more to-morrow. It is necessary to save seed out of this year's crop in order to have next year's crop. Men save not merely to accumulate the savings but to be able to carry out their plans for wealth creation by constructive efforts, and as they succeed in so doing they carry the whole community forward, besides benefiting themselves.

It is this idea of the community value of savings and of the constructive work which can be done with savings which makes the most stirring appeal for thrift. The picture of a miser who by painful self-denial gathers a chestful of coin, which he learns to love for what it has cost him, does not inspire any one to emulate the example. That idea of thrift identifies it with meanness, and unfortunately it is a common idea. The appeal for savings must be enforced and dignified by the purpose to be

served. Parents save cheerfully and resolutely to educate their children, and now we see millions of people saving for the purpose of lending to the Government and supporting it in the great world struggle which involves fundamental principles of right in the intercourse of nations. At this time all the arguments for thrift may be driven home with redoubled emphasis. Everybody can understand them. In the first place, at a time when the Nation needs every ounce of man power to recruit and equip its armies and supply its own people and its allies with the common necessities, it is wicked to occupy labor in providing mere luxuries which can be done without; and in the second place there is an obligation upon each of us to do all that his circumstances will permit in supplying the Treasury with money. The two obligations are the complements of each other; by observing the first we find the means of responding to the second. In view of the ominous emergency which confronts us, we can see where our duty lies, and if we are lukewarm or negligent, public sentiment is concentrated irresistibly upon us. When the war is over, although the situation will be less dramatic and critical, the arguments and obligations will be the same.

Thrift and Reconstruction Needs.—The need then will not be for money to buy munitions and war equipment but to rehabilitate the regions devastated, to improve and reconstruct the machinery of production everywhere, and to make good the waste, the losses, and the arrested development which the whole world has suffered. It is frequently said that society will not be the same after the war as before, and usually with the implication that the masses of the people will insist upon conditions more satisfactory to them and less favorable to those who possess wealth than have existed heretofore. It is surely much to be desired that conditions shall be always improving for the masses, and real improvement cannot take place too rapidly, provided, however, that it must take place in accordance with the natural laws of development. This means that it can take place only as the processes of industry are improved so that a greater supply of the necessities and comforts of life is produced. It is impossible to divide any more than all there is, and impossible to make any considerable improvement in the condition of the millions by mere changes in the division or distribution of the present vol-

418 AMERICAN PROBLEMS OF RECONSTRUCTION

ume of production. The processes are subject to endless improvement, but that means the destruction or abandonment of great amounts of wealth now existing in the form of equipment and the substitution of new equipment therefor.

Capital is always wanted to finance the new ideas that are awaiting development. Machinery which will give to each worker the capacity which two workers now have will realize the hopes for a reorganized society. To accomplish this, thrift is necessary; labor must be devoted to construction work, and while so engaged it must be supported by the savings of the community, precisely as the labor now called to the armies and engaged in producing war materials must be supported by the savings of the rest of the community. As we eagerly and devotedly save for the latter purpose, so should we save to increase the capital fund which is required to raise the level of living conditions.

The Standard of Living.—A discussion of savings is necessarily related to the question of living expenses, and that is a subject upon which people are naturally sensitive. It is not agreeable to people already struggling to make ends meet to be told, particularly by persons whom they suspect of having more than themselves, that they spend too freely and ought to economize and become forehanded. The defense offered in perfect good faith has always been that the cost of living was so high that saving was impossible, but the fact is that at all times and among all classes some people have saved and others have not. Living expenditures are determined to a great extent by more or less definite standards, generally adopted, to which people feel they must conform, and those standards tend to rise with the improvements in industry which bring new articles of consumption within reach. The list of things of common use and consumption is being constantly lengthened and would be astonishing to-day in comparison with what it was when our grandparents kept house. An old price list of the merchandise of ordinary trade is a very simple affair. It is not very many years ago that each community was largely self-supporting in all the usual necessities, and of course the appeal to taste and the invitation to multiply purchases have been enormously strengthened by the improvement in transportation facilities which has placed the products of the whole world on sale in every community.

The Discipline of a Harder Life.—Our forefathers lived more simply, then, for one reason because the variety of things to be had now did not exist to tempt them. The limitations upon production and transportation placed arbitrary limits upon indulgence. The diet, clothing, and household conveniences of the early settlers of New England would not be much of a burden to the incomes of their descendants to-day. And they were simple not only in their habits of expenditure but in their views of life. The religious motive was strong with them and was a moral restraint upon the desire for anything like luxury. The habits of methodical economy fixed by these conditions made them thrifty and prosperous as the methods of production and transportation improved and their command over natural resources increased.

The same phenomena have been seen when the peoples of older countries, where the conditions of life were harder than in the United States, have emigrated to this country. With their simple habits of living, acquired in the old environment, their accustomed industry, and the ambition to own property newly stimulated by the possibilities existing here, they have been usually more thrifty and successful than the native-born population reared under more favorable conditions. The latter have sometimes lacked the discipline which the more vigorous conditions imposed and have lost something in resolution and concentration of purpose from the easier circumstances and wider field of choice surrounding them.

The Appeal to the Consumer.—We have reached the stage where the appeals to choice and taste are of more importance in the market than competition in price. The old staples in wearing apparel give way to new creations which cost more, and the old methods of vending foodstuffs are superseded by the package deliveries which are more pleasing to the taste and doubtless more sanitary but which also are more expensive. We pay for convenience every time rather than undergo inconvenience. The modern science of advertising has opened vast market possibilities to every article which makes a new appeal to the public, literally creating new wants by offering new satisfactions. The art of catering to the public is highly developed, and consumption is greatly stimulated by such artificial means as changes of styles and seasonal appeals. The temptation either to discard

that which for the time is out of date, even though its utility is as great as ever, or to conform to new ideas and to alter or replace is very great and results not infrequently in overdoing, incongruity, and extravagance. We are overburdened with things and overstimulated by the spirit of emulation and change.

It does not, of course, follow that improvements in methods of production and higher standards of living are detrimental rather than advantageous, or that there are no offsetting gains from the impulse to change and have variety. In the first place, as population increases it is absolutely necessary that the methods of production shall be improved in order that a greater number of people shall be supported from the natural resources; otherwise the pressure of existence would become constantly more severe. Beyond this, the object of industrial progress is to change for the better the living conditions of the people, to surround them with the refinements of life, and to afford leisure for intellectual cultivation and development. It is apparent, however, that there is a great amount of misguided expenditure, unprofitable to those who make it and a waste of effort or worse so far as the community is concerned. Expenditures for the gratification of the appetites, which yield no real sustenance and are more or less prejudicial to health, may be mentioned first. The outlay for eatables and drinkables in excess of what are required for health is enormous. The outlay for amusement and recreation is probably no larger in the aggregate than it ought to be and perhaps not so large as it should be, but surely there is a large expenditure that is unwise. The waste upon mere ostentation, which is usually evidence of bad taste, is large. In these indulgences we in this country go much beyond any other people, for the reason, no doubt, that the average income in this country is larger than anywhere else. The immigrants from the older countries come with the careful habits bred in them, but their children, reared under the new conditions, have the more "liberal" ideas about spending money.

Fallacies in Extravagant Expenditure.—By a mistaken notion the idea of free living has been commended and popularized as a means of distributing wealth from those who have a surplus to those who are in trade or who work as wage-earners. This is due to a failure to discriminate between productive and unpro-

ductive expenditures. The \$150,000,000 which has been expended in reconstructing the Erie Canal has given employment to labor and made a great market for steel, cement, and other products of labor, and now that the canal is completed it will render a great and continuous service to the public. On the other hand, money which is unproductively expended, although conferring incidental benefits in the act of disbursement, is without after results. It diverts labor from work of permanent value, which would add to the enduring wealth of the community, to employment which serves only personal or temporary purposes. Endless waste has resulted from the propagation of the mischievous theory that a rich man was doing a praiseworthy act in hiring an army of servants to minister to his own personal wants. It would be vastly better to give them employment in his regular business, for legitimate business can continue only by rendering value for value received. The frugal person who disciplines himself to save and invest in interest-bearing securities affords employment to wage-earners as truly as the man who lavishes money on servants attendant upon himself, but the former enlarges the wealth-producing equipment of the community at the same time.

In some quarters mistaken zeal for the interests of the wage-earning class has prompted the advice that wage-earners deliberately adopt the policy of living up to their entire incomes, on the theory that wages tend in the long run to be fixed at the cost of living to the worker and therefore that if the cost of living is demonstrated to be less than they are receiving wages will tend to decline until they lose the surplus. This is pure theory and one of the speculations related to the Malthusian doctrine. The truth is exactly opposed to this proposition. Under modern conditions, where enterprise and industrial progress are always waiting on new supplies of capital, every accession to the capital supply means additional demands upon the labor market and new or additional services to the public, of which the wage-earner himself is a part. The surplus which the wage-earners annually save is in itself an important part of this new capital which constantly augments the demand for their own services.

The Personal Aspect.—Thrift, then, from the standpoint of the individual, means a judicious application of income to obtain

the largest and highest satisfaction in the long run, both through personal gratification and security and in the advancement of the community of which the individual is a part. It does not always mean saving money, for the saving of money is only a means to an end. Money is saved for the purpose of investment with a view to creating a larger income, and the larger income in turn is dealt with in the same way. Money may be invested in an education, or it may be invested in better living conditions surrounding a family. No expenditure of income is of greater public benefit than that which contributes to healthful surroundings, physical and moral, for a family of growing children, and nothing would be further from the idea of thrift that is here advocated than a shortsighted policy of saving which would dwarf the powers of the rising generation.

Psychological Value.—Thrift means self-restraint, a deliberate choice of expenditures, a preference for that which is of lasting importance over that which is of mere temporary gratification. It means rational provision against the accidents and reverses, a part of the common lot, which are easily surmounted if preparation is made in advance but which may be disastrous if there are no resources in reserve. It means comfort and independence in the later part of life, a position of influence and corresponding usefulness in the community at a time when, if thrift has not been practiced earlier, the position may be one of dependence and anxiety. It means a development of character which can be accomplished in no other way than by the exercise of intelligent, resolute choice at the cost of self-denial. In short, it means a well-ordered life, guided by a high sense of personal responsibility, instead of a drifting career, shaped and determined by the temptations that play upon it.

No more valuable lesson can be taught to children than that of wise discrimination in expenditures, developing as it does the powers of reflection, foresight, and the will, and laying the foundations for useful citizenship.

The National Aspect.—While thrift is rewarding the individual for abstinence by giving him character, independence, and influence, it is strengthening the Nation by bettering the conditions of life for all members of the community. The wealth which

thrift accumulates belongs not only to those who hold the legal title to it but in a very practical way to the entire community. All wealth productively employed is in the service of the public. It cannot be remuneratively employed otherwise. The public will use it only as it can see its own advantage in doing so. It conducts the activities which supply the public wants, and as the fund grows the general welfare is enhanced.

A period of rapid industrial development and rapid exploitation of natural resources is not most favorable to the cultivation of personal thrift. Where there are so many opportunities for making money the thoughts of the people are bent rather upon increasing their earnings than upon methods of saving. No doubt that well describes the difference between the American and European attitudes on this subject.

Types of Savings Institutions.—One result of this difference has been that less attention was given in this country than abroad to means of facilitating and encouraging small savings. A few of the Eastern States, notably New York and Massachusetts, have excellent systems of mutual savings banks, but many of the States have little or no provision for savings banks, although the commercial banks everywhere invite savings deposits and generally provide all required facilities. In recent years the national banking act has been amended to reduce the required reserve against time deposits and to permit the loaning of such deposits upon real-estate security. This places the national banks in a position to render savings-bank service. The postal-savings system has been established only a few years and appeals more particularly to foreigners unfamiliar with our banking laws and accustomed to rely on Government savings institutions. The rate of interest paid by the postal banks is lower than that paid by national, State, and savings banks, and to whatever extent they attract deposits from the national banks and State systems they work to the disadvantage of depositors. Local building and loan associations and life insurance companies are doing a valuable work in promoting systematic savings.

War-time Channels of Savings.—The enormous sales of liberty bonds and war savings and thrift stamps hold out great promise for the development of thrift in this country. Millions

of people who never knew it before will have experienced the sensation of having income from another source than their own personal earnings. Saving is largely a matter of habit and attention. The choice between saving and spending depends upon the strength of the competitive appeals at the moment, and much may be done to build up and make habitual the resolution to save. The ends to be accomplished may be so clearly set forth and emphasized that spending for trivial objects will afford no satisfaction. This generation has never known so many powerful motives as exist to-day united in behalf of careful, intelligent, public-spirited economy. In the first place we are asked to live simply and avoid the employment of labor unnecessarily in order that labor may be released to the army and to the war work for the support of the army. We know that in the first year of the war the Government's expenditures have been only two-thirds of the aggregate sum for which it had planned, and this disappointment is due mainly to the enormous demands of private consumption upon the industries and transportation systems of the country. Our people have not understood that in attempting to live and do business as usual they were withholding the country's industrial equipment from the Government's use. We must adopt the habits of simple living that the Government's wants may be supplied and that we may turn the largest possible share of our incomes into the Government Treasury.

Present Incentives to Save—Individual.—And then from the standpoint of intelligent management of our private affairs there are unusual inducements to live simply and save for the future. The prices of all articles for consumption are very high, while the prices of all choice securities yielding an assured income are unusually low. Seldom is there such a reward for abstinence and economy as now. Never again after this war, in all probability, will it be possible to buy the bonds of the United States Government to yield more than 4 per cent interest. As a people of keen business instincts and practical sagacity the policy of avoiding that which is temporarily dear and buying that which is temporarily cheap should commend itself to us.

It is well to bear in mind that conditions after the war will not be just the same as before, and that it is more than ever

the part of prudence to accumulate reserve resources against the uncertainties of the future. We know that this Government will have a great debt to carry and ultimately pay, and that the interest charge alone will require a great increase in Federal taxes. There is one way, however, for the individual citizen to get out from under this burden, and that is by buying Government bonds in such a quantity that the interest received from them will equal the taxes which he will be called upon to pay on account of the debt. That the taxes will have to be levied is a certainty, but it should be the ambition of each taxpayer to see that the share which he pays will flow through the Treasury back into his own pocket. If that should be accomplished the debt would be as good as paid.

Present Incentives to Save—National.—The period following the war will inevitably be one of unsettlement. No doubt the governments of all countries will take steps to support industry and supply employment, but the shifting of millions of people and the reorganization of business after four years or more of disruption must be attended with much uncertainty and confusion. There will be plenty of work needing to be done, but the various branches of industry are mutually dependent, and until they are established in helpful relations to each other general prosperity will not be assured. Against such periods as this the thrift which accumulates reserve purchasing power gives not only a protection to the individual but stability and support to the entire situation. Moreover, the United States must do more than preserve itself from reaction and depression. The whole world will be needing capital, and this country should be able to supply it in every kind of equipment and supplies. However, we already have most of the gold of the world and have bought back the greater part of our own securities formerly held abroad. Therefore, in order to sell abroad and keep our industries fully employed we must be prepared to give credit, and that can be done upon a large scale only by creating a great, broad market in which foreign securities can be distributed. A wise economy will serve this country by placing it in a position of financial and industrial leadership and at the same time enable it to render world-wide service in the period of prostration and need which so many regions will face when this war comes to an end.

XXIII

FISCAL RECONSTRUCTION

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THE THREE ASPECTS

In the domain of public finance, even more than in any of the other topics discussed in this volume, the subject of reconstruction presents almost insuperable difficulties of treatment at this time. It is entirely uncertain as to how long the contest will last and what will be the future drain upon our resources. No one can foretell how large will be the ultimate public debt, nor to what extent the necessity of meeting the outlays of the war will affect our future productive capacity. The destruction of capital and the depletion in the numbers or the strength of the labor force which we shall suffer are both unknown factors.

Since the extent and the nature of the necessary reconstruction are alike uncertain, the methods of procedure must themselves lack precision. But whatever be the final result, there are at least three difficulties which will confront us after the close of the war and which will need a statesman-like discussion and solution, irrespective of the length of the war and of the gravity of the situation. In any event, we shall have a huge debt; we shall

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have to find the means of defraying the vastly increased expenditure of the post bellum period; and we shall have to consider, as never before, the problems of economy and efficiency in public finance. In other words, the three great problems of fiscal reconstruction will be those of public debt, of public revenues, and of the budget.

THE DEBT

Were this a discussion of war finance, rather than of reconstruction, the subject of the public debt would loom even larger than is actually the case. For it would then be necessary to discuss the problems connected with the creation of a public debt, such as the desirable proportion of loans to taxes, the length of the loans, the character of the bond issues, the conditions of emission, and the provisions for amortization. In short, almost the whole theory of public credit would need elucidation.

As we are dealing with the problem of reconstruction, however, we must take all these things for granted. We must assume the existence of a huge debt bequeathed to us by the war. There will then remain two basic problems, that of the conversion of the debt and that of the payment of the debt.

The Conversion of the Debt.—With the first problem it is impossible to deal at the present time. In the case of a long-continued war the rates of interest at which successive war loans can be floated naturally rise. They will rise not only because of the probable weakening of the Government credit but also because of the increase in the general rate of interest which inevitably accompanies the destruction of capital during a war. The process has already begun in the United States. Our three liberty loans have been issued at the continually rising rates of $3\frac{1}{2}$, 4, and $4\frac{1}{4}$ per cent. What the future has in store for us no one knows. All that can be said is that if the war should leave us with a huge debt, most of which will probably have been contracted at a high rate of interest, one of the first duties of reconstruction will be so to readjust the debt as to take advantage of the restoration of credit and the fall in the interest rate. The larger the debt and the higher the rate of interest paid by the Government, the greater will be the need of a skillful

utilization of the sound principles of conversion. But in the absence of any definite facts, present discussion is useless.

The Payment of the Debt.—The other problem—that of the payment of the debt—is on a different footing. For here we have the questions, not only as to whether the debt should be paid at all, but how rapidly it should be extinguished. Peculiar as it may seem to the average American, the problem of a perpetual debt has by no means been finally solved. Some forms of indebtedness, to which even Americans have become accustomed, do not call for eventual repayment at all. In corporation finance, as in our railroads and other public utilities, there is neither need for, nor especial advantage in, paying off the mortgage indebtedness. The capital of our railroads is none the less capital because it is cast in part in the form of bonds. No demands of sound corporate finance require the total substitution of stocks for bonds. The same is in large measure true of public indebtedness for productive and self-supporting enterprises. There is no reason why Australia or Prussia should pay off the public debt which represents the investment in its railroads; there is no reason why New York should pay off the Croton water or the dock or the subway bonds, the interest on which is more than met by the respective earnings of operation. A perpetual debt in all such cases is a mere bookkeeping device. It constitutes no burden of any kind upon the community.

The European Theory of a Perpetual Debt.—In the case of debts contracted for war purposes the practice, if not the theory, in the chief European countries has been the same. Great Britain has made only a slight effort to extinguish the debt contracted during the Napoleonic wars; the war debt of France accumulated during the nineteenth century has likewise not been substantially diminished. The chief arguments in favor of a perpetual debt, even of this kind, have been two in number. It is argued, in the first place, that with the progressive increase in the wealth and productive capacity of modern nations a fixed debt constitutes a continually diminishing burden upon the community. In the second place, the argument is advanced that, at all events in so far as we have to deal with a domestic debt, there is virtually no burden upon the community as a whole. What

actually takes place, so it is said, is a payment from the right hand to the left hand, a transfer of income from the taxpayer to the bondholder. If the debt is accompanied by an appropriate revenue scheme, these mutual debits and credits will be satisfactorily adjusted from the point of view of public policy. Nothing will then be lost by the decision to maintain a perpetual debt. On the contrary, it is urged, the attempt to pay off the capital of a huge debt may involve dangers to the productive capacity of the Nation which will outweigh any possible benefits.

The American Theory of Repayment.—The American theory has been the reverse, largely for reasons dependent upon the disparate economic conditions of the United States. In the first place, the tempo of economic growth has been much more rapid in a new community like ours. The growth of our wealth and social income has been so prodigious that the country has experienced no appreciable discomfort in getting rid of a continually diminishing burden. So productive and so easily tapped have been the ordinary sources of revenue that from the war of 1812 to the period after the Civil War the extinction of the debt took place almost automatically. Our fiscal troubles during the nineteenth century have almost always been connected with utilizing a surplus rather than providing for a deficit. Our embarrassment has been not how to pay the war debts but what to do with our excess revenues.

The second consideration which differentiated American from European debts was that while in England and France the debts were almost exclusively domestic debts, our debts were in large part foreign debts. Instead of diverting the revenue from the taxpayers to the bondholders within the country, we were under the necessity of sending a portion of our annual production abroad to satisfy foreign creditors. Under such conditions there could be no doubt of the existence of a burden on the community, and with the realization of this burden there came a determination to get rid of it.

Application to the Present Problem.—After the conclusion of this war, however, the disparity between American and European conditions will be far less than has previously been the case. In the first place, now that all our free land is virtually gone, the

conditions of economic growth will not be so different in the United States from those to be found in Europe. Now that we have left the period of economic puberty behind us and have to confront the necessity of a public expenditure suited to a fully developed economic community, we shall not find the waters gush forth so plentifully from the sources of public revenue. We have reached the period of fiscal maturity, with all its complications and its embarrassments. In the second place, the relative position of Europe and America is now completely altered. For while our public debt must needs be well-nigh exclusively domestic, we shall have been lending such large sums to the Allies that, in these cases at least, no mean part of the debt will be held abroad. The conditions of the nineteenth century will, in short, have been reversed.

Does this mean, then, that the European countries will accept the theory of debt repayment and that we shall adopt the principle of a perpetual debt? Whatever may be the conclusion arrived at by the European countries, there is little doubt that we shall none the less oppose the theory of a perpetual debt and shall seek to extinguish ours as soon as possible. There are two reasons why fiscal reconstruction after the war will demand a rapid payment of our war debt.

Reasons for Rapid Repayment of Debt.—In the first place, we must recognize the fact that in a community like ours new demands will continually be made upon the Government for expenditures of a social character. With the growth of real democracy the community will begin to spend constantly larger sums relative to the growth of wealth. We are only in the first stages of really socialized democratic expenditure. When even Great Britain is already devoting tens of millions of pounds to a single item like social insurance, we can easily look forward to the time when the American governments will be spending their hundreds of millions of dollars for communal purposes of a more or less immaterial character, the very import of which is only dimly grasped at present. In proportion as this feeling spreads there will be a growing reluctance to devoting so large a part of the social income permanently to the service of the debt. We see even now the difficulties created in New York City by the narrow margin left in the debt limit and by the growing

inability of the city to increase its revenues to the point where a constantly greater surplus above the interest on the debt is available for needed purposes. The coming social democracy in the United States will insist upon removing what at all events seems to be an incubus and will cheerfully undergo the greater sacrifices needed for a time for the payment of the debt in order to wipe the slate clean and to allow the future to deal with its own expanding problems.

The second reason why there is need for a payment of the debt is to be found in the fact that there will in all probability be no such equitable adjustment between the taxpayer and the bondholder as is assumed in the theory of the burdenlessness of a public debt. In a consideration of the adjustment between poor or rich bondholders and taxpayers there are four possibilities:

First, there may be a wide distribution of the debt in the sense that most of the bonds are held by people of little means, while the system of taxation may be so arranged as to burden primarily the wealthy.

Second, there may be the same wide distribution of the debt, but the taxes may fall chiefly on the consumption of the poor rather than on the wealth of the rich.

Third, the bonds may be held predominantly by the wealthy classes, and yet the burden of taxation may rest on the poor.

Finally, both the bondholders and the taxpayers may be found to an overwhelming extent among the wealthier classes.

Whatever may have been the situation in the past, it is evident from what is happening at present throughout the world that modern industrial development combined with modern democracy conspires to make the fourth alternative probable. The immense increase of wealth in recent times makes it almost inevitable that the great mass of the colossal war loans should be subscribed by those classes which really have at their disposal a surplus of either capital or credit. On the other hand, the tendency toward democratic justice in taxation forcedly leads to the placing of the burdens where they can most easily be borne. The necessary result will be that both bondholders and taxpayers will be found primarily in the well-to-do classes of the community.

Rapid Repayment Favorable to Enterprise.—It would be a mistake, however, to conclude from this that there will be a sub-

stantial identity of interests between bondholders and taxpayers. On the contrary, there is going on at present a decided differentiation of taxation between two clearly marked subdivisions of the wealthy class. This distinction may be expressed as one between enterprise and property. It is the same distinction that is sought to be emphasized in the British classification into earned and unearned income. Modern taxes are being more and more clearly differentiated between taxes on individual wealth and taxes on business. While it is indeed true that the wealthy individual may have a business and that business prosperity may lead to an accumulation of wealth, it is none the less true that in a rapidly growing and shifting community like ours the burdens upon enterprise as such are coming to be sharply differentiated from those on property or on the income of property. With the need, seen everywhere to-day, of supplementing taxes on individual income or property by taxes on business or enterprise, a new division is created and a new argument for the rapid payment of a war debt emerges. For while the bondholders will necessarily be found in the propertied classes, the business man will more and more object to the burden of raising a substantial part of the revenue required to defray the interest of a perpetual debt. He will, as he ought to, use all his influence toward having the debt paid off rapidly out of the revenue of the class in which the bondholders are to be found.

The disparity of interests, therefore, that may be expected after the close of the war is not so much one between wealth and poverty as between property and enterprise. The greater the accumulations of wealth in modern times as compared with earlier decades the stronger become the arguments for debt payment.

Summary.—Our conclusion, therefore, is that in a country like the United States a perpetual debt is inadvisable. The old argument has indeed been replaced by new ones of a different character but of none the less compelling a nature. One of the first problems of reconstruction will be the rapid payment of the war debt.

At the outbreak of the war the present writer, who had this contingency in mind, advocated the emission of relatively short time (ten-year) bonds.² This suggestion was not followed in

²"How to Finance the War": Columbia University Papers No. 9.

the first and second liberty loans, the length of which was fixed at a considerably longer period. In the third liberty loan, however, the Government has seen fit to adopt the suggestion, and the bonds are to run for only ten years. It is to be hoped that this example will be followed in future issues, even if the other suggestion of throwing the issue into the form of serial rather than sinking fund bonds fails of acceptance. In any event, however, we are putting ourselves into a position which will be favorable to a comparatively rapid extinction of the debt. That is the first task to which we shall have to address ourselves after the war.

TAXES

Increase of Government Expenditure.—In order to make this rapid repayment of the debt possible it will be necessary to provide the wherewithal. The situation, however, is complicated by the fact that even without this necessity the public expenditures will be on a vastly augmented scale. In the first place, there will be the increase of expenditures bequeathed directly by the war. Foremost among these will be the provisions of the insurance law, replacing the hitherto existing system of pension legislation. The longer the war lasts and the greater the number of casualties, whether fatal or otherwise, the more colossal will be the outlay for compensation calculated on a liberal scale. In the second place may be put the expenditures indirectly due to the war. Although the exact nature and amount of these outlays will depend to a considerable extent on the conditions of peace, it is entirely likely that the military and naval expenditures of the United States will in the future be on a scale of far greater magnitude than before. Finally, in the third place, it is scarcely open to question that the democratic movement which will almost surely result from the war will engender a change also in the attitude of the legislator toward the vastly increased expenditure which will be demanded for the common needs. In the domains of transportation, of education, of public health, of social insurance, of science and art the demands for augmented outlays will become rapidly more insistent.

Both of these streams—that of vastly increased normal expenditures and that of provision for the rapid payment of the war debt—will converge into a mighty torrent of rising expendi-

tures. Here, as in Europe, one of the fundamental problems of reconstruction will be the provision for this colossal increase of Government outlay.

New Sources of Revenue.—In many of the European countries publicists and statesmen are despairing as to the possibility of making both ends meet through the resource of taxation, ordinary or extraordinary. Almost simultaneously the idea has arisen in Germany as in England, in Austria as in France and Italy, of utilizing the powers of government in new and untried ways. These suggestions have taken two forms—Government monopoly and Government control of industry. In the first class we find schemes for the Government assumption of the railways in those countries where private ownership still existed before the war, with the demand that the railways be run, as in Prussia, on the principle of profits, so that hundreds of millions may be derived in each country from this source alone. Widespread, in the next place, is the demand for the governmental assumption of coal mines. Next in order is found the demand for Government monopoly of the manufacture or sale of whiskey, of beer, and of tobacco. To these are added the demands for Government monopolies in a variety of other commodities, like sugar, salt, gunpowder, petroleum, and matches. In some countries we even find the growing demand for Government monopolies of other raw materials and necessities of life.

Where this prodigious step in the socialization of certain forms of industry seems to be attended with peculiar local difficulties, the substitute suggestion is offered that the Government should exercise a far more rigid control, partly for fiscal purposes, over industry in general. It is well known, for instance, that in Germany, at present, many of the important industries are rapidly being converted into trusts or combinations. Not only does the Government refuse to look with suspicion upon these combinations, but it actually compels every producer, whether he wills it or not, to enter such a combination. A great part of German industry is being compulsorily trustified. The reason for this is indeed only partly fiscal. It is due primarily to the fact that German economists and statesmen realize that industry in the future is to be on a large scale and that the well-meaning efforts of those who, as in the United States, have attempted to apply

436 AMERICAN PROBLEMS OF RECONSTRUCTION

the political ideals of individual liberty to the industrial field are mistaken. It is true, indeed, that there is a great future for democracy in industry as well as for democracy in politics; but it must be a democracy not of small-scale but of large-scale production. The chief difference between what is going on in the United States and what is developing in Germany is that the movement with us is progressing in spite of the law and an uninformed public sentiment, while in Germany and other European countries it is developing in harmony with the law and a new public policy. Abroad, however, the corollary of compulsory industrial combination is strict supervision by the Government, just as with us railway combinations and traffic associations developed with increasing Government control. What has already been decided in some of the European States is that the Government shall exercise a rigid control over these combinations in the interest not only of the consumer but of the general producing public as well. What has not yet been settled, but what is being actively discussed, is the amount of revenue which the Government shall demand as the first charge on the industry.

Both of these methods—that of governmental monopoly and that of Government participation in industry—are within the range of possibilities in the United States. But in view of our past history and of the peculiar characteristics of American life it is unlikely that we shall be compelled to resort to either. Not until all our other resources have been taxed and not unless the war should continue to the point where the country should be completely exhausted and the need of collective action become as imperious as during the war itself—only in these unlikely contingencies is it probable that we shall have to adopt these expedients. Leaving a consideration of these matters, therefore, to a future which we may all hope will be successfully averted, let us turn our attention to the more modest task of considering the demands of fiscal reconstruction through a change, comprehensive though it may be, in the methods of taxation.

Taxes, Burden or Privilege.—To the attentive student of the history of taxation the development of fiscal systems during the last generation is full of important lessons. Not only has there been a great change in the fundamental attitude toward taxation on the part of all modern democracies, but the methods employed

in giving expression to this newer attitude have themselves been affected by the marked changes in the economic structure of society.

If we were to attempt a broad generalization as to this fundamental change of attitude we would say that taxation is no longer regarded as a burden to be exacted from an unwilling victim but as a contribution cheerfully rendered by those who are alive to the sense of collective responsibility implicit in the very conception of democracy. The only limitation on this idea is the insistent demand for equality and uniformity of treatment, giving to those terms the broadest interpretation that has resulted from modern enlightenment. In principle this means the definitive adoption of the conception of ability or faculty—a conception to which lip service was rendered in part in former times but which has received a newer and a richer content during the last generation. More and more we are beginning to realize that there are two aspects of the doctrine of ability to pay or faculty in taxation. The one which was emphasized by the earlier writers almost exclusively is that of sacrifice—the idea, namely, that the test of real ability to pay resides in the sacrifice imposed upon the taxpayer. More recently, however, we have become familiar with the second aspect of the principle, namely, that of privilege. This is the idea that the taxpayer's ability to contribute to public burdens is to be measured also by the privileges which he enjoys. More and more do we realize that wealth must be produced in order to be consumed, and that while the conception of sacrifice applies more particularly to the consumption or the disposal of wealth, the conception of privilege applies to its creation or production. The consequences of this will be seen below.

Impersonal vs. Personal Taxation.—Hand in hand with this distinction there has come more recently an appreciation of the further distinction between taxes on persons and taxes on things, or, as it is sometimes expressed, the distinction between personal and impersonal taxation. Of course this has reference only to the immediate and not the ultimate phenomena. For, in the end, the money has to be subtracted from the pockets of the individual who has the final control of the thing in question. But the distinction is none the less a significant one. Whereas democracy has, on the one hand, manifested a decided tendency toward the

adoption of personal taxation, the imperious needs of modern government are disclosing the necessity of a fresh resort to im-personal taxation, although in new forms and with a new content. The fiscal reconstruction after the war will inevitably be effected along these two lines. Let us analyze them.

Property vs. Income.—The characteristic marks of the change in our conception of personal taxation are the replacement of property by income as the most satisfactory test of faculty and the alteration in our conception of expenditure as the measure of sacrifice.

In former times wealth was measured in terms of capital rather than of income—as a fund rather than a flow. In primitive society, where everybody was supposed to work, where there was little complexity or differentiation in production, where there were no very rich and no very poor, the conception of a fund of wealth was as natural as it was legitimate. In the United States, as elsewhere, the democratic content given to this conception of ability to pay was the general property tax. But modern economic life has brought about a change. The homogeneous mass of property has been split up into its constituent parts; earnings are not necessarily transmuted into capital but may be spent; the modern institutions of speculation and credit often stand in the way of a correlation between actual income and capitalized income; the character of modern enterprise and the opportunity afforded to business ingenuity create a disparity between invested capital and business profits. In short, the whole modern tendency is to emphasize the importance of wealth as a flow rather than as a fund. As a consequence we find everywhere the replacement of property taxation by the taxation of profits or income. Where the tax is imposed upon the individual as such—that is, where we have to deal with personal taxation, modern economic development is leading to the substitution of the income tax in lieu of the older general property tax. Where the individual is still taxed on his general property, the tax is becoming either an exceptional measure, as in war finance, or a subordinate and ancillary addition to the income tax.

Graduated Taxation.—With the adoption of income as the test of faculty, however, there have come two further developments.

The one is the adoption of the principle of graduation or progressive taxation; the other is the acceptance of differentiation or the distinction between different kinds of income. The first principle, that of graduated taxation, was until recently introduced only timidly. In England it came only about a decade ago. But in the United States, where we have the greatest democracy in political theory side by side with the greatest distinctions of wealth in economic fact, the war has seen the driving in of the wedge of graduation until to-day, as is well known, the recipient of the maximum income is under certain conditions subject to a tax of 75 per cent, namely, the sum of 67 per cent income tax and 8 per cent excess-profits tax. While these precise rates may not be retained after the war, it is not at all unlikely that public opinion will demand the continuance of a scale of progression steeper than may be found in any other part of the world. Our hand having been put to the plow, it is unlikely that we shall desist. Sharply graduated income taxes must form a part of the policy of fiscal reconstruction.

Earned vs. Unearned Income.—The other phase of the problem, however, has not yet been attacked in this country. Whereas Italy accepted the principle several decades ago and England adopted it in 1909 by separating earned from unearned incomes, we have still to introduce the much needed reform. The higher equality in taxation can never be attained until we differentiate between the various kinds of income according to the criteria not only of the sacrifice imposed in parting with the income but of the privilege enjoyed in creating the income. While progressive taxation is, at least in part, the result of the conception of sacrifice—the relative sacrifice in paying a tax diminishing with the growth of the income or the property—the other aspect of faculty, that of privilege enjoyed in creating the income, leads to the demand for distinguishing between earned, partly earned, and unearned incomes. Differential taxation, like graduated taxation, is a corollary of the modern theory of ability to pay. We have adopted the latter; we must before long accept the former.

Luxury as a Test of Ability to Pay.—The second change in our modern conception was stated above to be the altered attitude toward expenditure. In former times taxes were in large

measure imposed upon the necessities and conveniences of life, thus burdening primarily the expenditure of the poor. Modern democracy has set its face resolutely against such widespread taxes on commodities, on communication, and on transactions. In this we find the secret of the growing antipathy to the so-called but misnamed indirect taxes. But the retention of certain imposts on particular commodities, even in modern democracies, shows the need of a distinction. In the United States, as in Great Britain, the chief so-called indirect taxes are levied upon articles like whiskey and tobacco, which properly represent either luxurious or baneful consumption. What has not yet been done and what is, nevertheless, a logical corollary of the principle of ability to pay is to extend this system of expenditure taxation to more and more luxuries and to apply here as elsewhere the principles of graduation and differentiation. When expenditure taxes are restricted to those on truly luxurious and harmful consumption, expenditure will be restored to its rightful place as a proper norm of faculty in a democratic scheme. One of the problems of fiscal reconstruction will be to work out a realization of this principle.

Impersonal Taxation.—While the income tax and to a lesser degree the expenditure tax will form the principal elements of personal taxation, the future probably has in store for us a reformulation of the old system of impersonal taxation, or taxes on things—a reformulation of which the beginning can already be seen. If we regard the taxable thing, rather than the taxable person, we find that there are three chief categories, namely, land, capital apart from land, and business. Each of these is likely to play an important part in fiscal reconstruction.

Land Tax.—Land everywhere forms the basis of our State and local taxation. In only a few places in the United States, however, is the land tax treated as a tax in rem instead of a tax in personam. But even in the greater part of the United States where land is taxed to the individual as a part of his general property the tendency is clearly perceptible to differentiate land from the rest of the property both in the rate of assessment and in the actual success of collection. In some States this process has gone through its normal evolution and the tax is assessed

on the land in rem, irrespective of the owner. While the single-tax movement has but little chance of success because of its exaggerations, the kernel of truth in the idea is to be found in the conception of privilege as applied to land and in the fact that there is a difference, not indeed in kind as the single-taxers assume, but in degree, between land and other forms of property. For while the progress of the community helps to enhance the value now of this thing and now of that, the value of land is apt to be more uniformly and consistently augmented by the growth of population and wealth. This difference in degree renders legitimate the demand, not for a single tax but for a special and additional tax on land, which will take account of the socially enhanced increment of value. Moreover, since this increased value is due not alone to local but to general causes, there is no reason, apart from constitutional obstacles, which can be readily removed, why we should not follow the example of Australia and supplement our State and local taxes by a Federal land tax, which will resume for the community a part of the values that have been created through privileges conferred, consciously or unconsciously, by the Nation at large. We have fortunately no mediæval heritage, as is found in Great Britain or some of the continental countries of Europe, to stand in the way. In proportion as public opinion comes to realize the importance of privilege side by side with sacrifice as a test of faculty in taxation, a special land-value tax—local, State, and national—will come to be considered a necessary part of the fiscal reconstruction after the war.

Tax on Capital.—The second form of impersonal taxation is a tax on capital, irrespective of the owner of the capital. This may assume several forms—a tax on capital in general or on special kinds of capital. The chief example of the former is to be seen in the inheritance tax. It is true that where the inheritance tax is imposed upon the shares, it can be considered a tax on the accidental income of the recipient. But where, as is now the case in our National Government and to an overwhelming extent in Great Britain, the tax is imposed upon the estate as a whole, it may more properly be regarded as a tax on property. It is a tax on the thing, fitly supplementing in a democratic community the personal tax on the income of the individual.

Here also, before the war, only faint beginnings had been made in the United States. But at present, under the stress of war, we have a tax which rises in certain cases to 50 or 55 per cent, the maximum being 25 per cent for the Federal tax and 25 to 30 per cent in some of the State taxes. While such a combined rate will be exceedingly rare, the very existence of such a steep graduation shows the possibilities of the system in post bellum finance. That highly graduated inheritance taxes have come to stay and that they will form an important element in our program of fiscal reconstruction is scarcely open to doubt.

Tax on Business.—In contrast to this general tax on capital we find taxes on special kinds of capital. If we distinguish between consumption capital and production capital it may be said that the tax on consumption capital may be fitly represented by the taxes on luxurious or harmful consumption discussed above. So far as production capital is concerned, the history alike of the United States and of Europe teaches a significant lesson. There are only two fiscally important forms of production capital—capital represented by the intangible forms of wealth known as securities and capital invested in business enterprise; for capital invested in land is taken care of by the land tax.

Of these two forms experience has everywhere shown that the better method of taxing securities consists not in attempting the impossible task of assessing the securities in rem but in reaching their yield as a part of the income tax upon the individual. Whatever may be the future of the so-called low-rate intangibles tax in some of our States, it is improbable that a special tax on this form of capital will loom large in any policy of reconstruction.

The situation is different when we deal with business capital. Here, however, the conception has been broadened so as to comprise the business itself, irrespective of the capital invested in the business. Thus the capital tax merges into the business tax. The business tax, like the land tax, is a tax on the thing rather than on the person. Just as the land tax is coming to be a tax on the land instead of the landowner, so the business tax is coming to be a tax on the business instead of the business man.

The business tax has gone through an interesting development. In the continental countries of Europe, when the old per-

sonal taxes of the Middle Ages were abolished by the French Revolution, they were replaced by a system of impersonal taxes, or taxes on things, of which the business tax was one. In the course of the last generation or two, however, there was a decided trend back to personal taxation in the newer form of the income tax, and the business tax was accordingly allowed to lapse. More recently, as the inadequacy of a system of pure personal taxation again disclosed itself, we find a return to the taxation of business, but this time not as a substitute for but as a supplement to the personal tax.

In the United States the development was slightly different. With us business enterprise soon took the form of corporate activity, so that America became the earliest home of corporate taxation. Our corporation taxes developed, therefore, side by side with the property taxes on individuals. While it is true that business enterprise here takes the predominant form of corporate activity, the most recent addition to our tax system—the excess-profits tax—has virtually become a general business tax, including corporate as well as non-corporate business. This business tax, like the similar war taxes in other countries, now constitutes the most important feature of our tax system. And although it is calculated primarily for the duration of the war, the possibility of its retention as a permanent element in our revenue system is by no means excluded. Now that the great fiscal possibilities of the system are becoming evident, the desirability of a continuance of the system after the war is in fact becoming increasingly clear. In considering this problem, however, only two points need to be emphasized at present. One is that any modern and equitable business tax must deal with the results rather than the processes of business. The other is that the tax must be so arranged as to interfere to the least possible degree with social production.

Summary.—It is evident, then, that in the program of fiscal reconstruction at least five important taxes will call for careful consideration—the income tax and the tax on luxurious consumption as representing the personal taxes; the land tax, the inheritance tax, and the business tax as representing the impersonal taxes. If these taxes are developed with a due regard to the principles of sacrifice and of privilege and with a due apprecia-

tion of the modern demands preferred by a social democracy of the truest type, we may confidently look forward to a system of public revenues which will be entirely adequate to the demands of the reconstruction period.

THE ADJUSTMENT OF REVENUE AND EXPENDITURE

The Relation of State and Federal Taxation.—There still remain two problems which, however, can only be briefly touched upon. The one is the general relation of Federal, State, and local finance in the post bellum period. The war has rudely dispelled many cherished notions. The doctrines of State sovereignty and of local government have given way to the imperious needs of a centralization undreamt of in our past history. The fiscal needs of the future will be distributed in a far different fashion between Federal and State or local authorities. If, as seems possible, the railways will never again revert to private ownership, the situation will be further complicated by the disappearance of one of the chief forms of State and local revenue. The old-time clear distinction between the sources of Federal and of State revenue is vanishing. The former sharp line of separation between Federal and State expenditures is being rapidly blurred. What has hitherto been no problem at all bids fair to become one of the chief problems of fiscal reconstruction—namely, the selection of the true principle to guide us in the elaboration of a system which will respond to the intermingled needs of Federal, State, and local governments. To discuss this principle here would take us too far astray; it must suffice to emphasize the importance of turning the thoughts of the statesman and the expert to this new range of problems.

Budget Reform.—Even more important than this, however, is the need of budgetary reform. The growing pressure of our taxes and the increasing recognition of the lack of efficiency and economy in American fiscal arrangements have led within the last decade to the beginnings of a consideration of budgetary reform. The immensely greater pressure of the impending burden, however, and the need of rigid economy will cooperate to put this topic in the forefront of every program of reconstruction. The problem is all the more difficult because of our po-

litical embarrassments—not merely those of political fact but those of political theory. The thoughtful citizen is only awakening to a recognition of the fact that our entire theory of government rests upon an error. We are the only civilized community which has erected a mistaken theory into the fundamental basis of our political structure. The theory of the separation of powers was a generalization which Montesquieu evolved from an erroneous interpretation of the British constitution as it then existed. Although that theory was never accepted by the British writers and was soon refuted in practice by the development of the British constitution, it found a lodgment in American minds and was before long introduced into American practice. In no part of the British Empire, not in Great Britain or Canada or Australia or Africa, is this principle of the complete separation of powers accepted. On the contrary, the executive is everywhere simply an organ or a representative of the legislature. What is often called the parliamentary form of government, found almost everywhere else in modern democracies, is contrasted with the presidential form of government, characteristic of America. This unfortunate sharp separation between the executive and the legislative in the United States is the chief reason why we lag so far behind every other country in the adoption of a modern budget. Our shortcomings are due not simply to inefficient administration but to fundamental errors in political organization. The sooner this fact is recognized the easier will be the process of reconstruction after the war. Fiscal reconstruction will demand, as a necessary prerequisite, political reconstruction. Far from having solved our basic constitutional problems, as we used to think, we are only at the very beginning of constitutional reform.

But while an entirely modern system is well-nigh hopeless of accomplishment in its entirety without fundamental constitutional changes, much can yet be done, even under our present political system, in improving upon the budgetary anarchy which is found in Federal and State governments alike. With the detailed principles of such a budgetary reform this is not the place to deal. We shall be content to have pointed out its paramount necessity.

Conclusion.—It is evident, therefore, that the problems of fiscal reconstruction are by no means among the minor problems that

446 AMERICAN PROBLEMS OF RECONSTRUCTION

will confront us. Social prosperity depends at bottom upon economic considerations. Government, as the war has now so convincingly shown, is becoming an increasing factor in shaping the scope and limits of these economic considerations. Government can carry on its work, however, only if it is provided with adequate means. Thus we are brought face to face with the fiscal problems which must be solved if we are to have social progress. Fiscal reconstruction is the cornerstone of the social edifice of the future.

XXIV

CAN DEMOCRACY BE EFFICIENT? THE MECHANICS OF ADMIN- ISTRATION

BY FREDERICK A. CLEVELAND ¹

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We Americans are called a practical, hard-headed people. This is a tribute to success in the management of our everyday business affairs. And as individuals we have succeeded. We have succeeded because we have learned our work-a-day lessons in a hard, rough school, which has been ruled by "the god of things as they are." In this hard, rough school he who "saw things" that were not real, he who suffered from illusions, was soon put out of the race. The earth (or our section of it) and all that is in it was divided among those who could make the most of it.

Lack of Standards Due to Lack of Competition.—In matters of public business no people has suffered more from illusions. And the reason is quite plain. In our public business, before the outbreak of this war, we were not required to measure up. We therefore had no competitive standards. In fact, we started

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448 AMERICAN PROBLEMS OF RECONSTRUCTION

out with the thought that we did not need any standards; that government is a necessary evil; that it was not to be made efficient; that it was not to be built strong for service; that the less we had of it the better.

Our aim was to make the Government weak because we thought that by so doing we were protecting our liberties. And our whole political history has been true to this. Our Government has been both weak and wasteful to a degree which has been appalling.

Politically We Still Live in the Eighteenth Century.—One of the things that this “made in Germany” world war is doing and will continue to do is to help us to get into a mental attitude of right thinking about our Government—to clear away a lot of heirlooms of political philosophy that, however useful they may have been found in their day by furnishing slogans to a nation of frontiersmen, are about as well suited to present conditions as are the instincts of a mud-dauber wasp to fit him to live in a colony of bees.

Let us not pass this point too lightly. Politically we are Quixotic. We are living in an almost forgotten age. We are still in the woods fighting King George. And the dominant notes heard in our Congress to-day are taken from the melodies made popular by Tom Paine when that time-worn, dog-eared philosophy known as *laissez faire* was in vogue; when it was the ambition and the opportunity of every young man to fly wasplike with his newly wedded wife to some out-of-the-way place and there settle down without bothering with or being bothered by the Government.

Some of the Illusions from Which We Suffer.—Our forefathers faced a real world, and their thoughts and actions were attuned to it. But it was quite different from the one in which we now live. And in our private affairs we have changed accordingly. When competitive production pointed the advantage of coöperation we gave up our wasp economy. We began to work like bees and live like bees. But in our public and political relations we still continued to think and act like mud-dauber wasps, with the result that we became victims of numerous illusions. Among the illusions from which we were suffering at the out-

break of this war, these may be mentioned in passing: The "minute-men" illusion—the idea that all we have to do for military protection is to call for volunteers, and an army full clad and full armed will spring up which can "lick anything in sight"; the "pacifist" illusion—that if we but keep our poise, remain placid and unmoved, refuse to spend our time and substance training citizens to fight when others are preparing for war, our example will be overwhelming; the "socialist" illusion—a honey-bee philosophy that carries with it a splendid coöperative idealism but too often, as in Russia, looks for success with little thought given to the mechanics of production and distribution; the "demi-god" or strong-man illusion—which pictures a heroized "he-man" appearing like a Greek god in railroad offices, factories, and ship-yards, and presto! all the incompetence, all the inefficiency, all the waste due to lack of planning, lack of organization, lack of training, both in leadership and in team work, vanishes—which assumes to think that this "he-man" can bring forth fruits which would make our slow-plodding German green with envy; the "Joan of Arc" illusion—that all we need is a great inspirational leader, some one who can, through the art of dramatic appeal, mobilize the minds of a hundred million simple-minded folk without bothering about any of the details of administration.

The War Has Forced Us to Face a Real World Politically.—In this war our dreams of democracy are being made real by practical test. We have been forced against our will to accept the gauge of battle or give up our notions of human liberty. When we were forced to choose between servility or fighting Prussianism, we were forced to live politically in a real world, though a very different one from that in which our forefathers lived. We could have no more illusions. No longer could the campaigner who sought to "represent" the American people win applause and support by dexterity in the art of "twisting the Lion's tail." We were busy getting ready to fight. No longer could cart-tail orators "make the eagle scream" by dramatically portraying our President as an embryonic "reincarnation of a great Ogre reaching out for the throat of our national goddess." We saw the need for leadership. We began to "see ourselves as others see us." We became conscious that while we were still under the spell of our illusions we had stood by in childish innocence watching the

Prussian war lords build their great war machine, little dreaming that it would be used to crush us; that we had stood by with our faces turned while Belgium and France were being trampled underfoot; that for nearly three years we had stood by while citizens of this and other neutral countries were being murdered by the thousands, refusing to believe in the things that were real.

Our First Realization of the Need for a Strong Government.—We had shaken off our illusions about Prussianism. When finally we came to see things as they are, when we elected to “do our bit,” when we stood forth as a Nation to take a fitting part in carrying democracy’s burden, we went into a struggle that called for action. To “do our bit” we must have unity of action by a hundred million people. We must harness up all the inventive genius, all the machinery of destruction, all the machinery of production, all the man power, the mule power, the motor power that this Nation could bring into use. All our human and material resources must be directed to one purpose. The dominant national need was team work—unity of effort in order that we might prove in actual competition with Prussian autocracy that democracy can develop an efficiency that is adequate for self-protection. On this our success depends. Depends, for we are still on trial. Our success as a democracy depends on our ability to master the mechanics of efficient coöperation, on our ability at the same time to master the mechanics of popular control.

THE MECHANICS OF NATIONAL EFFICIENCY

Let us first consider what it is we must do in order to master the mechanics of efficient coöperation. This must come first, because if in this we do not succeed to a degree that will give us an advantage in this trial of strength with the most efficient human machine the world has ever known, we must accept defeat—the institutions of democracy will be crushed.

Strong Centralized Leadership a First Essential to Efficient Coöperation.—The first essential to efficient coöperation is strong centralized leadership. The stronger this leadership can be made the better. Experience in a real world of competitive effort has taught us to accept this as a practical conclusion—as a funda-

mental principle of organization and management. It is accepted and applied as a principle in all our private undertakings. Now as a Nation in our public affairs we are forced to accept this principle or acknowledge defeat. To do so, however, we must completely overhaul our machinery of political control. Let us have no more illusions about this. In our efforts to make our democracy safe against ourselves, we have robbed our Executive of leadership. In the Federal Government, because we distrusted ourselves, because we were still fighting shadows, we took initiative for the conduct of our business away from the Executive and divided it among one hundred and ten different irresponsible Congressional committees—committees ruled by the principle of seniority, whose accountability is to a small and therefore self-seeking constituency. To realize the length to which legislative sabotage has been practiced on the Executive with our consent and approval, with a view to making centralized leadership impossible, it is necessary only to reflect that there are now more than thirty Congressional committees each in its own particular sphere dealing independently with subjects of finance, revenue, expenditures, and appropriations. But this is not the whole picture; in order to make sure that our liberties may not be violated, these one hundred and ten irresponsible committees (each in its own domain our real Congress) have built up a business organization in which they deal with more than a hundred irresponsible cross sections of the administration.

The ship of state has been divided into over a hundred airtight compartments to prevent the crew from sinking it before our eyes. And instead of the control being put under the President as captain, authority has been sliced up and separately wrapped in parcels, each parcel being securely bound with strand on strand of red tape to make sure that no one can tamper with it except one or another of these irresponsible committees. Such is the organization that we have slowly and painstakingly built up to prevent team work—prayerfully conceived to make effective executive planning impossible.

With this human machine we started out to win the war against the Prussians, its chief mark of distinction and claim to renown being the promptness with which each bureau head, when asked by the President to do something, could turn to statutes and decisions and demonstrate beyond all peradventure that the particu-

lar thing requested could not be done—could show in how many different ways the obviously simple, practical needed thing, if done, would make both the bureaucrat and his titular superior a law-breaker. Even with all the chaos and confusion attending our lack of executive leadership, Senators, both Democratic and Republican, spent long wordy weeks telling each other why they were against the Overman bill—the purpose of which was to give the President power to reorganize the departments and other agencies of the Government so as to make them more efficient.

“It is dangerous to put so much power in the Executive!” “It would make the President the most powerful autocrat the world has ever known!” “It is undemocratic!” But with its eye turned to France, where millions of men have gone to fight for democracy, the country was conscious of the fact that the lives of their soldiers were being imperiled for lack of something—something that the Hun had with him—something which the Kaiser interpreted as “Gott mit uns.” With the opposition to centralized leadership we became impatient, when the outcome of the war was hanging on the issue. No longer were we willing to accept the good old doctrine that it is democratic to be shiftless—unprepared. No longer were we willing to accept the principle that democracy can run successfully without strong leadership.

But democracy is tenaciously conservative. President Wilson urged the Allies last November to centralize leadership—“Unity of plan and control over the conduct of the war for all the Allies.” This necessity was not driven home till after the second battle of the Somme. President Wilson urged the passage of the Overman bill, and it was not till the sense of necessity became overwhelming that old-time prejudices were set aside. Then public opinion expressed in a thousand different ways came to the support of the Executive. The Overman bill was passed. The President by statute was given power to do for all departments what officers like General Goethals had already begun without specific authority—to cut the red tape, smash down the bureaucratic walls which had been built up under the protection of Congressional committees, clear the way for the upbuilding of an organization which under common leadership could conserve all the man force and material resources of the Nation. The principle was accepted by Congress which President Wilson is reported to have laid down in dealing with the Supreme War Council, that “unity of action

through centralized leadership must be accomplished if the great resources of the United States are to be used to advantage."

A Well-organized and Well-disciplined Line a Second Essential.—An organization is a machine made up of human parts. To function effectively each part must have its place and do its work. To do this each human unit must fit and coöperate with every other human unit. A human machine differs from a purely mechanical device in this, that the fitting process is one of training and discipline and that the individuals as working parts must be held together not by a rigid material frame or structure but by common sense, by common purpose or feeling of loyalty that each must do his part. The frame which holds the working parts of an organization together is what the French call *esprit de corps*.

The efficiency of a human machine depends on two things—*training and discipline* on the one hand, which make for individual skill in coöperative efforts, and *leadership* on the other. But the leader need not be a fixed part. The leader is only the engineer. He can keep the mechanism in order. He can tune it up. He can direct its energies. But the test of efficiency of both the engine and the engineer is found in the horse-power developed and applied to the accomplishment of group results. And those who are interested in results should be able to change engineers whenever they desire.

The importance of line discipline cannot be emphasized too much. On the other hand, the machine is not a thing which can be changed except by slow, careful piecemeal adjustment without shutting down. And even then any broad overhauling requires months, perhaps years, of tuning up. The coach of a football team spends days and weeks finding out the personal abilities and capabilities of his men. He trains each man to make him fit. He trains his men in squads—each to do a part and to "assist" in group accomplishment. He teaches them that upon the success of all depends the success of each. He puts one practice team against another to ferret out and overcome group weakness. He builds up the *esprit de corps* as well as strengthens and improves each unit and part. He spends long hours tuning up, to find out the maximum performance which is made effective. For like reason we are training our drafted men to get them ready to do their bit. We are training them to meet the great war ma-

chine that has been built by Germany during years of careful preparation. We are training a second line as well as a first line of defense. But what we have not yet fully realized is this—that the second line of defense reaches back to the last man and woman engaged in peaceful pursuits—that the welfare and success of democracy depend quite as much on leadership in control of industry and transportation as they do on control of the battle line.

A Highly Specialized Staff a Third Essential.—But leadership is limited by the powers of a single man to observe. He therefore needs instruments of control. And in human institutions these must also be organized. For reasons of economy of effort, coöperative work is subdivided into branches. Then, again, each branch is broken up into divisions. Then each division for the same reason is broken up into sections. Then each section is broken up into squads. And in each squad each man is set his particular task. The reason for the differentiation of tasks is to enable the individual to become so expert that the wear on each part, fatigue, may be reduced to a minimum. Because fatigue is primarily a matter of nerve strain there is the least wear where each act in response to command becomes a matter of habit. Such is the purpose of discipline. Specialization by branches, divisions, sections, and squads, on the other hand, is to enable subalterns in command to become expert—to become efficient parts of the mechanism of control. But the greatest efficiency is found developed in management when the chief executive can also have a staff organization, an expert personnel who are quite separate and apart, entirely relieved from line duty, who may devote all their time and thought to helping him in planning and checking up results. The staff aid to leadership is a part of the human machine quite as necessary to efficiency as a well-trained line organization and the abilities of subalterns in the line.

Germany's Success Due to the Use of These Three Principles.—A true appreciation of the value of expert or staff aids to management lies at the foundation of Germany's military and industrial prowess. Before the middle of the last century Prussia was scarcely a third-rate power—the German States being controlled by rule-of-thumb methods as a much divided feudal aris-

tocracy. In Prussia, the big State, were two men—Bismarck and Von Moltke—who saw the practical side of superior organization and methods. Bismarck gave his thought largely to external conditions. Von Moltke, organizer and executive leader, gave his thought largely to the mechanics of efficiency—to the details of organization, discipline, and planning, with a view to getting things done with greatest economy of effort and material resources.

Careful study was made of our mistakes in the Civil War and of our industrial failures. Careful study was likewise made of the mistakes of other governments and nations. By slow plodding methods Von Moltke built up an organization which was tried out first against Denmark, under conditions more favorable through the Bismarckian alliance with Austria. After this a cause for war was found with Austria, and the sphere of Prussian influence was again enlarged. Now fourteen years were given to training, discipline, building up esprit de corps. Fourteen years were devoted to tuning up Prussian line and staff; and when ready Bismarck found a way of quarreling with France so that the Von Moltke machine could again be tried out. War was declared. At that time few if any Frenchmen dreamed that Germany could win against a people who still carried with them the prestige of Napoleon—against a nation more populous and opulent, whose power had been such as to force all Europe, only fifty years before, to unite against her. But so superior were the organization and the discipline worked out by Von Moltke that inside of sixty days France was on her knees and both Napoleon III and his great army were prisoners of war.

If this does not carry conviction, we have but to turn to Japan, another people, until a few years ago despised among nations, poor in material resources, who by using the same principles of organization came to be recognized as a world power.

THE MECHANICS OF DEMOCRATIC CONTROL OVER LEADERSHIP

As in the use of high-power machines so in government there must be a careful adjustment of prime movers, actuated parts, and devices of control. What has been said about control has to do with the ability of the leader or engineer to direct the energies and determine the activities of the Government to make

it efficient. That which we criticise in German organization is not the effective use made of centralized leadership, expert aids, and a well-trained line; it is the lack of constitutional methods for making executive leadership responsible—lack of control over the executive. No one can conceive of a war like this having been brought about except by leaders who were not under democratic control.

Independent Responsible Inquiry, Criticism, and Publicity a First Essential.—In this we must not confuse popular control with the ability of an autocratic leader to get a following. Without a following there could be no such thing as autocracy. It would have been impossible for the war lords to have made all of the energies of two German nations subservient to a program of conquest, except by a long systematic process of building up loyalty to their leadership. This can be done in many ways. But democracy insists that consent shall be based on a full knowledge of what is being done.

The fundamental difference between the devices of control used by Prussian autocracy and Anglo-Saxon democracy is a difference in attitude toward inquiry, criticism, and publicity—which is another way of saying a difference in their concept and definition of trusteeship. The Prussian defines his duty as responsibility to the Kaiser. The Kaiser defines his duty as responsibility to the God of the Nation. The vicious circle in this reasoning is that the Kaiser, claiming to be leader by divine right, makes his own god, and then by a carefully planned process of education and controlled publicity makes for the German people a "Gott mit uns" which is an exact picture of his own leadership.

The underlying principle of Anglo-Saxon control is that the Government is an incorporated trusteeship of which the people are the beneficiaries. Anglo-Saxons insist on a form of control over their Executive which will make those who administer the trust subservient to the will of a majority.

By the process of controlled information and publicity the subservient German is made to believe that that form of bestial barbarity which he proudly calls Schrecklichkeit is the wrath of God—overlooking the fact that theirs is a Prussian-made god. The less confiding, less subservient Anglo-Saxon puts fear of God

into his rulers by keeping before them the threat of removal whenever a majority may say "Thumbs down."

But independent inquiry, criticism, and publicity will not win the war—and they may be so used as to make the Government inefficient. Any controlling device which may be used to advantage must be such as will not interfere with the efficiency of the prime mover. The function of control must be to make the engine safe and still permit it to develop its maximum force.

The mechanics of democratic control may be described in very simple terms. As strong centralized leadership is the underlying principle of efficiency, so in a democracy an independent representative body, reviewing and determining policies, is fundamental to control. The rest of the mechanism consists of devices for gearing in, to enable the people as the controller to operate the throttle so as to keep the use of executive power within limits. If public opinion is to be the controller and executive leadership the prime mover, then it goes without saying that some method must be found for gearing in public opinion. And this can be done by finding some effective way for keeping the people accurately informed and for permitting popular judgment to operate promptly and certainly on the Executive.

This gearing-in process is best effected (1) by making the representative body a court of inquest for the people and at the same time a medium through which to reflect their views; (2) by making it the duty of the Executive to appear before this court of inquest and frankly, openly, publicly tell what the Government under executive leadership has been doing and what it proposes to do; and (3) by making the continuation of the exercise of power contingent on a vote of confidence or approval.

This specification for a popular controlling device is simple. In practice it has been made effective by giving to a representative body control over the purse, so that supplies may be shut off, if need be, should the Executive refuse to resign at the "thumbs down" signal.

The success of all high-speed engines depends quite as much on nicety of adjustment as on correct principles of construction. The primary purpose of this court of inquiry is to insure political justice; the people are just as much interested in knowing that their executive leaders have a square deal as they are that the cards are turned face up after the play. The most effective technique

of political control was worked out by Gladstone, the great English Commoner. Gladstone's great contribution to democratic government was twofold: first, he developed, independent of the Executive, effective agencies of inquiry, criticism, review, and publicity. In addition he made these agencies responsible, as well as the Executive. In order to achieve this end the House of Commons was made a real forum in which all the contending interests that centered in the Nation's capital would be dramatized. In every contest there would be two great central figures, each of whom would be a recognized leader. On the one side would stand forth a "he-man," who has been picked out as the champion of a policy on proposal of those whose duty it was to run the Government. On the other side would stand forth an equally heroic figure who has been picked out as "leader" of the opposition. Nor was this contest permitted to degenerate into a farce or fencing match between demagogues and catch-phrasers. The case of the Administration must be tried on evidence before the people. To make the Administration responsible, the Cabinet was required to come before the House sitting as a committee of the whole and present, explain, and defend its acts and proposals. And to enable each member of the House who sat as a jurymen to know the facts about what had been going on, a critical reviewing staff independent of the executive was organized and placed under an officer called the Auditor General. It was made his duty to review every transaction currently and approve or disapprove, reporting as a brief on the facts the results of his inquiry for review by the House. Then to make sure that every matter of material evidence was brought out, a strong committee of members was organized, called the Committee on Public Accounts, the chairman of which was taken from the "opposition." Note this! With a view to having the case against the Executive fully presented, the "opposition" or critical members were made an integral part of the machinery of control. This committee was first organized in 1866 and remained in the hands of the opposition with the exception of one year (1869) from that time until the coalition Cabinet was formed at the outbreak of the war. The opposition being thus provided with every opportunity to obtain exact information about every act, as well as being given a chance in committee of the whole to ask questions

of the Executive concerning each proposal submitted, there was no excuse for uninformed criticism or for underhand, irresponsible, misleading "yellow dog" publicity. Thus provision was made by Gladstone for making the Government "visible" as well as "responsible" to the people.

The point is this: That whether by the British method, or the French method, or the Swiss method, democratic governments have found a way whereby control by majority vote has been made consistent with strong executive leadership. But in order to do this it has been found necessary to find a way whereby all the human resources, all the experience which has been developed in management, as well as in line discipline and staff knowledge, may be retained in the Government. And for this we need not spend a hundred years. The mechanics of conservation are an achievement which deserves more than passing attention, for the reason that we have never thought it worth while to conserve. Our own method has been to relegate executives to political oblivion just as soon as the reins of administration are turned over to some one else. We have overlooked the fact that those who are not chosen to play on the team are just as important as those who are chosen, provided they know the game. The importance of conserving our managing talent is found in recognition of the principle that critical review and publicity are just as vital a force for democracy as executive leadership. Canada pays Laurier a salary as leader of the opposition. Asquith is second in power in the English Government only to Lloyd George. Clémenceau must face a leader in "opposition" on the floor of the French Assembly who is just as able, just as well informed as himself and who has every facility possessed by himself for obtaining evidence of inefficiency and waste. Everywhere except in the United States provision is made for keeping two well-trained crews each tugging against the other. The one is set in "opposition" to the other for the purpose of pointing out weakness. This not only provides effective control but also keeps both sides tuned up to the highest efficiency. The representative body is thereby able to pick its most effective men to meet any emergency and to change engineers at any time without stopping or even slowing down the engine. Such is the method for making democratic control consistent with the development of highest efficiency.

Control Must Reach the People.—A second principle to be used in the mechanics of control over the Executive is this: Any device to be democratic must be within reach of the people. It must be capable of being operated so simply that merely by an adverse vote the scepter of power may be taken out of the hands of one executive leader and put into the hands of another who is picked by the majority for leadership at that particular time. The immediate instrument for making the shift must be a discretionary representative reviewing body. But this body must also be made responsible. Every political judgment must find its ultimate justification in the minds of a majority of the electorate.

RESTATEMENT OF PRINCIPLES

By way of restatement: The first essentials of successful management of a democracy are these:

1. Strong executive leadership. The stronger the better—the strongest that democracy can produce with no limitations or inhibitions so long as this leadership has the support of those who are served.
2. A well-disciplined line organization—an organized personnel as large as may be needed to execute orders and do things that the people need to have done without human or material waste.
3. A highly specialized staff organization—an organized personnel, trained and set aside to study and report facts and conditions that must be taken into account by the leader; persons who are not responsible for direction, but who may aid by making a management intelligent through staff knowledge and guidance.
4. Adequate facilities for inquiry, criticism, and publicity by a responsible personnel independent of the Executive—the making of the representative body a real forum with full opportunity given to a responsible, critical opposition under the leadership of persons well trained in the public service, a leadership as strong as the head of the administration.
5. Means of effective control in the hands of the people and their representative—a control which is prompt in its operation and which can be shifted from one hand to another without loss of efficiency or waste of resource.

Germany Used Only the First Three.—The builders of the Prussian political engine used the first three principles only. They knew the value of efficiency, but they had no interest in democracy except to crush it. The Prussian war lords kept out of the German constitution principles which make for democratic control. Their leaders gained loyal support and contentment of the people through misrepresentation and through a paternalistic service in the same way as the head of the family did under primitive law. They developed a materialistic culture which provided amply for creature comforts and which left no alternative open to the individual other than to accept a comfortable paternalism or submit to a practice of penal frightfulness which knew no bounds except the limitations of human invention.

Britain Left Out the Second and Third.—Great Britain, in building up her imperial organization, has stressed the first, the fourth, and the fifth of these principles. Britain has provided for political leadership. But she has from the first insisted that this leadership shall be responsible, and therefore the attention of British statesmen has been devoted primarily to expedients which would insure democratic control. Because of her national strength, because of her predominance, because of her control over the sea, however, it was not until the beginning of this war that Britons were made to see the necessity of utilizing the second and third principles—the necessity of providing a well-disciplined line for operating her national activities and a well-trained scientific staff to assist in executive direction.

France Used All the Principles.—France had developed an organization in which all five of these essential principles of political mechanics were used to good effect, but she was late in seeing the need and had not the human or material resources to build large enough and strong enough to compete successfully with the Prussians. It was only through brave Belgium's sacrifice that France was saved from destruction.

Russia provided for leadership but did not make it strong and neglected all four other essentials. It was nothing but her mass weight and size that held the Prussian war engine on her border for three and a half years.

America Has Left Out All of Them.—America has developed a type of engine all her own—one built in disregard of all these principles of successful organization and management. We have made no provision for executive leadership—in fact, we have gone to great lengths to prevent it. We have not developed a well-disciplined line organization. We have not developed a strong, intelligent staff—in fact, this is a thing impossible without strong executive leadership. We have not developed adequate facilities for independent responsible inquiry, criticism, discussion, and publicity, because the initiative is kept in legislative committees. We have not developed means of effective control in the hands of the people and their representatives, because we had an irresponsible Executive.

The Paramount Question.—With these known requirements and defects, we now have before us in the Overman bill the largest, the most vital political question that this Nation has ever had to decide. It is this: Shall we as a democracy insist on strong executive leadership? Shall we so organize that our Executive can effectively direct and use all the forces and resources of the Nation for common-welfare ends—be they the ends of peace or war? Or, let us put the question more broadly in view of the enterprise on which we are now embarked: Can we and our Allies so far adapt and tune up our political machinery that we may demonstrate in actual competition with Prussian autocracy an efficiency that is adequate for self-protection and at the same time make it consistent with the aims and purposes of democracy?

HOW OUR GOVERNMENT MAY BE MADE BOTH MORE EFFICIENT AND MORE DEMOCRATIC

It has been frequently stated that the establishment of a responsible form of Cabinet administration would require an amendment to the Federal Constitution. I submit that this can be brought about without even a change in statute law—simply by changing the rules of the House. If Congress were to change its rules so as to permit—and if necessary by statute require—the Cabinet to appear before it on public matters, as has been suggested—if the rules were so changed as to give priority to execu-

tive measures and a Cabinet member were required to appear personally before the House sitting as a committee of the whole to explain and defend, we would then by this simple change have the means of making the Government responsible.

And such a change in rules is necessary to make our Congressional procedure consistent with the spirit of our Constitution. The only function of Congress is to operate as a part of the machinery of control over the Executive. It was not intended to operate as a prime mover. To make Congress perform its constitutional function it is not necessary to change the Constitution. It is only necessary to gear up the machinery right.

To show what such a change in rules might mean: Let us suppose that a majority of Congress refused to support a measure or measures urged on the representative branch by the President. What would happen? What could happen? Either the President could be forced to bring in an amended bill or proposal or he could be forced to reorganize his Cabinet at any time that a majority of the representative body was against him. If the rules were so changed that he or his Cabinet would be required to assume leadership, if the President were required to have men around him who would stand or fall on their ability to command the respect and support of a majority, the Executive would be both responsible and responsive, no matter how much power might be given to him. We would have an Executive who could be given the greatest power to direct because he could do nothing if he did not have a majority back of him. Congress, at any time of emergency, could force a coalition Cabinet, a Republican Cabinet, or any other kind of Cabinet, as a condition of granting supplies.

When this point has been urged it is conceded that Congress has power to force the Executive to come before it; to require heads of departments to give a full account of their stewardship; to require the Cabinet through one of its members to present a budget and as co-members of the Administration to stand or fall together on their ability to get the support of a majority. But the question is asked, What would happen to Congress should it do such a thing? In answer it has been said, Congress would not dare to tie the hands of the Executive simply because it did not agree with financial or administrative measures submitted.

On the other hand, it is quite as clear that when the people of this country get into a frame of mind to demand the overthrow of the present methods of "invisible," "irresponsible" government, no Congressman would dare to do anything else. There is every reason to believe that the country would stand back of such a proposal. When President Taft proposed an executive budget, although Congress was not even courteous in receiving it, he was almost universally applauded by the press. And a referendum taken by the Chamber of Commerce of the United States showed that every trade body voting except one was in favor of it. When later the President issued a call to his Cabinet to prepare such a budget, though Congress passed a law with a view to prevent it, when he wrote to the Secretary of the Treasury ordering him to comply notwithstanding Congressional opposition, there were only two dissenting editorial notes in the whole country. Maryland shortly afterward passed an executive budget amendment to her constitution. Governor Lowden of Illinois made a campaign on the principles above laid down, and he won out. Governor Goodrich of Indiana won out on the same kind of an issue. Governor Edge of New Jersey got the same result. There is every indication that the people are ready to respond. What is needed is leadership. And this war is bound to bring such leadership to the front.

XVIa

TARIFF PROBLEMS

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This chapter, dealing with the tariff problems that will arise in consequence of war disturbances, will be restricted to such as have a direct and close connection with tariff legislation. There is no occasion for considering here those abnormal conditions which have only an indirect bearing upon tariff legislation—the extraordinary development of the munition-works, or the unusual conditions with regard to the supply of some raw materials, like hides and leather. Many industries for whose products there has been a marked war demand will have to face problems of readjustment after the war. But tariff legislation can do little for the war babies. For tariff purposes it is the non-war industries that call for attention—those which have been stimulated by the restriction or disappearance of imports. Many articles formerly obtained from abroad have come to be made in the United States. What is to happen to the industries which now provide them? On what principles shall we proceed in readjusting tariff rates on commodities which were imported before the war, and not improbably will be again imported after the war, if tariff duties remain as they were before?

A kindred question, and indeed in many respects the same question, is whether the United States shall in the future aim

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to be an economically independent country, self-contained and self-sufficing. Shall we look forward to a resumption of international trade on substantially the same lines as were followed in the past, or to a world order entirely new? It is inevitable that foreign trade shall be in some important respects very different from what it was before. But how great is the change likely to be and how far shall we endeavor to regulate it and control it? In some quarters there is expectation of a great expansion of exports after the war, a great increase of foreign investments, a great development of the mercantile marine and of the carrying trade, close connection of the United States with industrial matters abroad as well as with foreign politics. Others look forward to a diminution of imports, to less reliance upon foreign supply, to domestic production of things formerly bought abroad, to the maximum of industrial independence and self-sufficiency. These are very different expectations and very different points of view. They are not readily to be reconciled. If exports greatly increase, so will imports. If imports are much reduced, exports also must be expected to shrink. The policy which we shall follow with regard to tariff legislation must be consistent with our policy in the wider political and industrial problems involved.

The terms "self-sufficiency" and "economic independence" are vague. No one would propose to cut off foreign trade entirely. Whatever our tariff policy, we shall continue to export largely and to import largely. True, it is tolerably certain that the relation between exports and imports will not be the same as it was before the war. We are not likely to have the remarkable excess of merchandise exports, or so-called "favorable" balance of trade, which the records have shown for the last thirty or forty years. In any case we shall import on a great scale. If there is to be that increase of exports, absolute and relative, which is confidently expected in many quarters, we shall import in even greater quantities than before. Whatever the future relation between imports and exports, foreign trade is certain to remain a large factor in our industrial organization. Complete self-sufficiency, in the sense of domestic production of everything we use, is out of the question, and in any case it is inconsistent with the ambition for an expanding export trade. "Economic independence" is a matter of degree.

Imported goods—those imported in the past and those which

may continue to be imported in the future—are divisible into three classes, which may be styled, respectively, the military, the essential, the non-essential. The line between one and the other of the three cannot always be drawn with precision. There will be differences of opinion on the place of many a commodity in one or the other of them. But they are broadly separable; and the tariff situation will be made clearer if they are taken up one by one.

The first class, military commodities, include things needed directly for the purposes of war, such as rifles, artillery, munitions. The second, the essentials, include things not indeed needed primarily for military use, but of vital importance to the life of the nation. Such are the fundamental food materials, fuel, clothing materials, timber. With regard to these, the question whether their domestic production be deemed essential is affected by the possibility of obtaining or increasing a supply with comparative ease and speed. A thing may be essential; yet if the needed supply can be rapidly secured when needed, it is no great matter if we do not now possess a stock. The third class ranges all the way from luxuries which are clearly superfluous to conveniences and comforts which habit has made it difficult to dispense with.

I.—MILITARY ARTICLES

As regards the first class, military articles, such as guns, powder, military equipment, explosives, armor plate, and the like, the principle is simple. It is obvious that there must not be complete dependence on foreign sources of supply. The only disputable question is whether munitions shall be manufactured by the Government directly or by private industries to be supported by Government aid if unable to hold their own without it. If private industries are subsidized or supported, there must be some control and regulation of their profits. As to such things practically no one would advocate a policy of complete dependence on imports.

The principle is simple and clear. But how far shall we carry it? Shall we go so far as to assure the production within our borders of the entire supply of every item needed for great military and naval establishments?

During the early stages of the European war this question was

raised in connection with our own great exports of munitions. We were then neutral; we were selling munitions on a great scale to warring countries. Under international law our right to do so was clear. It is as well settled as anything in international law that a neutral nation may lawfully allow its citizens to sell munitions and any contraband of war to belligerents—subject, of course, to the chance of capture. But many people asked, is this rule of international law, settled though it is, a *good* one? Should the law be modified? It was argued that the extraordinary scale of our exports showed the sale of munitions to be in effect unneutral, and inconsistent with equality, with regard for good order and peace. The answer made—by Mr. Taft, for example—was that in reality such transactions were not unneutral, being in effect conducive to peace, not to war. Quite apart from the question of making a change during the very time of war, and in such way as necessarily and deliberately to influence the fortunes of the conflict then raging, the point was made that if a belligerent country could not buy munitions from neutrals, it must be prepared to supply its needs entirely and once for all from its own resources. It must make for itself, or store on a great scale, cannon, rifles, explosives, all munitions. No such vast preparation would be necessary if it could purchase from neutrals. A country which looks to peace, hopes for peace, works for peace, should not consistently adopt a policy of the most thoroughgoing preparation for war. The argument which thus defended the position of the United States in the international controversy evidently ran counter to a program of all-embracing preparation. It assumed that even for direct military purposes something short of self-sufficiency might be in accord with the best international policy. Even here, it thus appears, are some questions of degree, some stretches of debatable ground. Complete dependence on foreigners for the apparatus of war is not conceivable for a great nation; but absolute self-sufficiency is not necessarily the wisest policy.

In the same class as munitions in the strict sense would be placed materials indispensable for military supply and equipment. Of these, at least a minimum needed for the supply of the army and navy should be produced at home. Among such are iron and steel, copper, leather, wool. To be absolutely dependent upon foreign countries for them is to be under a grave mili-

tary disadvantage. But in this regard there is no serious difficulty for the United States. Under any circumstances we shall produce enough to supply the strictly military needs. Conceivably the civilian population might be inconvenienced in time of war, possibly subjected to positive suffering, because of a lack of these fundamentals, as was the case in Germany because of the lack of wool and leather. But the civilian supply raises a different set of problems, to be considered under our second head. So far as concerns military needs proper, the United States needs to be watchful concerning its supply of the guns, the explosives, the war-ships; but as regards most raw materials, and as regards the plant, equipment, and machinery necessary for working them up, the situation need cause no foreboding.

A difficult question arises concerning some articles of minor quantitative importance, which are not readily obtainable by domestic production, perhaps not so obtainable at all, yet are important for military purposes. Such are nickel and tungsten, used in hardening the ferrous metals; antimony, used for shrapnel shells; quicksilver, indispensable for firing any kind of ammunition; nitrogen (ordinarily in the form of nitrates), of the first importance in the manufacture of explosives. We have practically no nickel, no deposits of nitrates, sparse deposits of antimony, uncertain ones of tungsten and of quicksilver. What is the best way of making military provision?

There are two ways. One is to stimulate domestic production by tariff duties or bounties, or by the equivalent of bounties through government purchase at guaranteed prices. The other is the accumulation by the government of a large fixed stock or reserve, to be kept always in hand and to be available at once in case of war. The choice between the two is sometimes confused by an advocacy of domestic supply, and of protection to domestic producers, on grounds of general industrial policy. It is urged we should not be dependent on foreigners for these articles; "dependence" being used with the same implications as the term would suggest in the case of non-essentials like toys or chinaware. General arguments for protection are interwoven with the specific arguments for military preparedness. From the military point of view, much is to be said in favor of the accumulation of an ample store; it is more secure than are meager domestic mines and deposits. Such domestic sources of supply

are subject to political as well as physical vicissitudes. A protective policy, even though instituted with an eye to military needs, may be given up when a long period of peace has obliterated the traditions of warlike preparation.

A peculiar case under this head is that of the coal-tar industries, which furnish at once dyestuffs and explosives. The Germans, as we all know, had a unique command of them—a dominance such as they had in no other manufacturing industry. Dyestuffs in themselves do not belong in the military class; indeed, do not seem to belong even in the essential class. Though often spoken of as essentials for textile manufactures, they can hardly be said to be indispensable to the life of the nation, or even to its comfort. True, a textile concern which lacks good dyestuffs must go to the wall if its competitors are supplied with them; but if all alike are cut off, the consequence is simply that the community, and especially the women, will have to get on with fabrics not quite so alluring and tempting, perhaps not quite so fast in color, as they might be. The ground for considering articles of this kind in connection with military needs is the close interrelation between explosives and dyestuffs in the coal-tar industry. It is not entirely true, as is sometimes intimated, that a dyestuffs-plant can be converted into an explosive-plant overnight. But true it is that the early steps, and many of the intermediate steps, in the production from coal-tar of dyestuffs and of some important explosives are the same. At a point in the processes which is considerably advanced there can readily be a diversion in one direction or the other—either to the manufacture of dyestuffs or to the manufacture of the shell-filling high explosives. Not only has the same plant much apparatus which is available for both purposes, but the same set of trained chemists and skilled workmen can be used. The possibility of alternative use is thus one of degree, of flexibility; and the feasibility of transfer to military uses is sometimes exaggerated. Explosives as a rule are greater in bulk than the related dyestuffs; under ordinary circumstances some readjustment of plant is necessary for getting a supply of explosives from a dyestuff plant. But after all qualifications are made, a strong argument remains in favor of regarding the dyestuffs manufacture as potentially a military industry. It has the further advantage of being a military industry which can be utilized in times of peace. There is

no question that early in the war the German dyestuffs-plants were turned to the production of explosives. It is urged that such utilization of them was deliberately had in view, as one of the many preparations for the great war. Whether or not this was strictly the case during the past, it is tolerably certain that in future they will be systematically planned and supervised with a view to military availability. And it is well known that the larger American manufacturers of explosives have turned to the production of dyestuffs as an industry for times of peace.

There are other reasons—to digress for a moment—why the dyestuffs industry stands by itself. Not so much that it is a “key” industry; the extent to which dyestuffs dominate the textile and other manufactures is often exaggerated. But the complete control in the industry which the Germans aimed at before the war, and largely succeeded in securing, threatened consequences which the most convinced free-trader must regard with apprehension. Combinations in the nature of gentlemen’s agreements were in effect even then between the different concerns. Now, as all advices indicate, there is a firm *kartell*, or tight combination. Here is a foreign monopoly—a real monopoly, and not merely (what is often styled a monopoly) localization in a foreign country of an industry within which there are many competing concerns. A solid German *kartell* in the coal-tar industry is pretty sure to be a strenuous competitor. It will try to crush competition in foreign countries by selling at cost or below cost, and then recoup by advanced prices when the competitors are destroyed. Possibilities of this sort are often paraded as a bugaboo by extreme protectionists, when the facts give little occasion for concern. But here is a case where there may be veritable need for industrial self-defense.

And yet it remains, in some respects, a puzzling case. The German concerns have been ruthless competitors, and may still be. Yet they have also been, and perhaps will remain, more efficient producers than their rivals in other countries. They do the job well. They make good dyestuffs, and make them (certainly did make them) cheaper than competitors abroad. Industrial, technical, social conditions, favored the industry in Germany as nowhere else. To shut the Germans out entirely would seem of doubtful advantage to the rest of the world. A middle

ground should be found between complete exclusion and unfettered freedom. Possibly, and much to be desired, is some international agreement providing for fair competition, no deliberate dumping, no cutthroat industrial warfare; a consummation depending on the kind of peace—a true peace, a real concord of nations?—which shall be eventually secured.

Still another consideration must be borne in mind. The complete dependence on a single country for the main dyestuffs, of which we became unpleasantly aware in 1915, is not likely to be again experienced. Other countries, no less than the United States, are concerned that this situation shall not recur, and are developing dyestuffs industries of their own; notably Great Britain and France. Switzerland, long the seat of a dyestuffs industry, will remain so. In the future there will be competition between manufacturers in different nations to a vastly greater degree than before the war, and hence no longer a reliance on any one source of supply. The chance that all sources will suddenly be cut off from the United States is almost negligible. Even if there be much reliance on imported supplies, the conditions will be less fraught with danger than those which prevailed before the war.

II.—ESSENTIAL ARTICLES

Next, the second class of commodities: essentials for the civilian population. Shall the nation be quite independent of foreign supplies for its grain and its meat, its wool, leather, cotton, coal, copper, iron, and steel? The problem for many countries, and indeed for most countries, is complex and difficult. Italy has no coal; in what way shall she make provision for the possible curtailment of foreign supplies of coal in case of war? Italy is no less lacking in iron and steel. Neither France nor Germany has copper. Germany cannot be self-sufficing as regards many commodities—not only copper, but wool, leather, cotton—without huge and now impossible expansion. Neither can France or Italy or Austria. The British Isles are self-sufficing only as regards coal and iron. Foodstuffs and raw materials of all kinds must be obtained by the British from overseas—either from foreign countries or from colonies or self-governing dominions. Tariff protection for these materials and their domestic production would mean a crippling of British manufacturing industries. And in

many cases tariff protection could not possibly achieve self-sufficiency.

But this phase of the problem need cause the United States less concern than other nations. We are fortunate in being able to procure within our own borders grain, meat, coal, iron, copper, timber, cotton, wool, leather, in quantities sufficient for our essential needs. True, we do import some important materials in considerable amounts, such as wool and hides. But we are not so dependent on foreign supply as to be in a position of imminent peril or serious suffering, even though the foreign supply should be entirely cut off.

There are some things, however, which may give us occasion for concern, or at least for sober reflection. How far they are absolutely essential, may be an open question. But there are much needed articles for which we were quite dependent on foreign countries before the war. A typical case is that of potash. The potash situation is peculiar in that here also Germany had a monopoly. And the monopoly has been for some time a true monopoly, not merely a geographical concentration of supply. There has been a strong *kartell*, in which the Prussian Government, as mine-owner and producer, has long been a controlling influence. Potash is mined in great quantities from the remarkable German deposits, and has been exported by the Germans to many parts of the world. The United States has been the largest among the foreign purchasers. The Germans think it is indispensable to us—as indispensable to us as our cotton industry is to their textile industry. Potash in exchange for cotton—this was their bargaining cry.

Potash is used for manufacturing purposes, as well as for agriculture. It is important, for instance, for some branches of glass manufacture; for matches and some kinds of explosives; for making soft soaps. As regards these uses no completely satisfactory substitute is available. In other industries, though convenient, it is replaceable by satisfactory substitutes. But for all the manufacturing uses taken together the quantitative demand is not considerable, and probably can be met without serious difficulty from domestic resources. Potash in small amounts can be got from certain brine deposits in Utah and the western part of Nebraska, and in probably larger quantities from the analogous deposit at Searles Lake in California. Some can also be got from

alunite, greensand, wool scourings, distiller's and sugar-beet-factory wastes, as well as from the giant kelp which fringes parts of our western coast. Still other important potential sources of supply are cement dust and dust from blast furnaces. The cost of producing potash from many of these sources will probably be much higher than the pre-war prices of the imported potash; but since no considerable amounts are used for any single manufacturing purpose, higher price of the material would not be of vital consequence.

It is in agriculture that really large supplies are needed, and are needed at low prices. Of the pre-war imports ninety-five per cent went into fertilizers. And the plain fact must be faced that, so far as agricultural needs are concerned, there is nothing now in sight effectively to break the German monopoly. The 226,000 tons of actual potash which were being used for fertilizer purposes before the war cannot be obtained for some time from any visible sources except the German mines, for our total output for 1918 promises to be only about 60,000 tons of actual potash. How far is the country in this regard vitally dependent on a foreign commodity?

Here is the situation. Over large areas of the South and East our agricultural crops are grown with the use of large supplies of fertilizers in which, excepting for temporary periods, potash is an indispensable ingredient. Such is the case in the citrus groves of Florida and Porto Rico, in the potato areas of Maine and the Atlantic seaboard, the tobacco-fields of Kentucky and the Connecticut Valley, truck-garden regions from the Mississippi River to the Atlantic and from the Gulf of Mexico to Canada, and in most of the cotton-fields east of the state of Mississippi. Potash is also needed for some crops in Ohio, Indiana, and other of the Middle-Western states, including many of the sandy potato soils of Wisconsin and Minnesota, as well as the great areas of peat soils in all parts of the country. In these regions its lack means serious embarrassment and need of difficult readjustment. But fortunately American agriculture in general is not so seriously dependent. In the great Central region of the country, potash is only needed here and there for special crops, such as potatoes, onions, and tobacco. The heart of the country is almost completely independent of this particular plant food, even though there are spots where it is needed. As time goes on, and the in-

evitable transition to more intensive cultivation takes place, American agriculture not only in the East and South, but also west of the Alleghenies, if it is to meet the food requirements of a rapidly increasing population, will indeed need enormous supplies of phosphates, increasing supplies of nitrogen, and more or less potash. As the grain crops of the region from the Atlantic to east of the Rocky Mountains are increased by the liberal use of phosphates and more nitrogen, the need of potash will become far greater than at present. But this ultimate need is not a matter for immediate concern. During the period of readjustment after the war, the country as a whole will be no more dependent on artificial fertilizers than it has been in the past.

In the regions which may be called dependent, again, the need of potash could be lessened, but not overcome, by a complete change of agricultural procedure, such as the growing of crops requiring less potash or the substitution of some form of animal husbandry which would insure the return to the soil of much of the limited natural supplies of available potash. Our agricultural methods and crop specializations have been adjusted to the available fertilizer supplies and to the market demand for special crops. Fifty years ago, even thirty years ago, commercial fertilizers, though then they would have been valuable in the East and South, were little used; but the practice of animal husbandry was more common, and extensive crop specialization was practically in its infancy. It is not out of the question that there should be a return in some degree to the agricultural methods of former times: more barn-yard manure, a different rotation of crops, a self-sustaining agriculture. Such a change, however, would entail all the difficulties of transition. Farmers are traditionally conservative, not easily moved from their existing ways, slow to accommodate their methods of cultivation to new conditions. Not only this; farmers would probably find a self-sufficient agriculture somewhat less profitable. It is doubtful, for example, whether a larger net money yield to the producer would be obtained if the cotton-planters of the South, instead of allowing their cotton-seed cake to go to Europe or to other parts of the country, were to use it for their own cattle and were to turn their attention to dairying and meat production to that extent. If the supply of potash, or indeed of other fertilizer, were to be permanently cut off, a readjustment in this direction would be

possible, indeed inevitable; but it would be by no means necessarily profitable.

The confidence which the Germans exhibited and perhaps still exhibit, when talking about their potash, was in keeping with the self-deception which did so much to plunge them into false moves in every direction, economic as well as diplomatic and military. Perhaps their attitude was no more than braggadocio—not so much self-deception as an attempt to deceive others. Their potash is highly acceptable under present agricultural practices; but it is by no means indispensable. Should they shut it off from the United States and other countries, agriculture would gradually adjust itself to new conditions based upon a different cultivation and in part upon the cost of recovering by-product potash from various industries. Meanwhile the search for other underground deposits, already initiated the world over, would be prosecuted the more eagerly, with a strong probability that, as is commonly the case with materials thought to be unique, competitive sources of supply will be discovered. Indeed, similar deposits are already reported to have been found in Russia, Spain, and Abyssinia. Not least, the recovery of Alsace by France opens the one natural source of supply which is known to be comparable to that of Germany. To Germany herself the eventual outcome of a withholding of potash would be of more than doubtful advantage; her strong position of the past would be likely to crumble away. And in any case, she is herself vastly more vulnerable through the cutting off of her supplies of cotton, copper, wool, oils, than any other country as regards her potash.

The sort of economic warfare and would-be strangulation implied in the quest for control of essential materials and "key industries" is to my mind abhorrent. It is not to be thought of as part of a peace that shall really terminate the great war. But if it must be faced as among the possibilities of an inconclusive settlement, the United States is in a stronger position to let it go on than any other country. So far as concerns potash, which illustrates best our own inadequacies and needs, we may be composed. After the war, we shall probably be quite willing to admit it free of duty, as we did before the war. If the Germans should be so foolish as to prohibit its export to us—a most unlikely contingency in the final settlement—we should quietly accept the situation, readjust our own affairs accordingly, and, if there must

be economic war, resort to retaliation more effective than any possible thrust directed against ourselves.

III.—NON-ESSENTIAL ARTICLES. THE TARIFF CONTROVERSY

In the third class, that of non-essentials, belong a number of articles which in pre-war times were imported from Europe, and after the peace probably would continue to be imported under the existing scale of duties,—those of the tariff act of 1913. Such are the more expensive grades of woven textiles,—woolens, cottons, silks, linens; the finer grades of cotton yarns; embroideries and laces; a good deal of porcelain and chinaware, and a few (not many) kinds of glassware; toys from Germany; brushes for toilet use; cotton and leather gloves for women; notions, buttons, and so on through a long list. Many are clearly articles of luxury; others are dispensable conveniences. Some have come to be made in this country during the period of disjointed foreign trade, but not a few have continued to be imported through it all.

Still other things may be put in the same class, which, though perhaps to be deemed essential, need cause no concern because their domestic production can be undertaken or expanded in a short period of time. Laboratory glassware, for example, was formerly obtained almost exclusively by importation, and chiefly from Germany; a large proportion of the imports was admitted free of duty because used by educational establishments. Almost all the forms and shapes are now made within the country, of excellent quality. But they are not sold at as low a price as that of former imports; and it is possible, even probable, that after the war the same disparity in price will remain, and imports will be resumed. Being usually of special shape, made in small lots of any one pattern and with much hand-labor, they are produced more cheaply in countries where wages are lower and where special skill of the needed sort can be had at a moderate rate. On the other hand, the increase of supply in this country took place very quickly under war conditions, and doubtless would take place again under similar conditions in the future. The case is much the same with optical glass and spectacle glass. It is quite feasible to make these within our own borders; but under the normal conditions of foreign trade they are obtained more

cheaply by importation, and for the same fundamental reason,—in the main they are products of handicraft labor. Surgical instruments, too, came mainly from Germany before the war; they too, like munitions of war, have been turned out by domestic producers in large quantities in response to a sudden demand.

Quite a different problem here arises, and quite a different train of reasoning must be followed. The protective controversy pure and simple must be faced and settled. The thoroughgoing protectionist point of view is that the previous importation of any commodities which could have been made at home was always bad, and that the stimulation of domestic production, fortuitous though it may have been, was in itself good. From this point of view, the dependence upon foreign supply had always been a cause of economic loss; the interruption of foreign supply because of the war served only to bring out clearly the economic disadvantage of the situation. And from this point of view, too, the resulting inconvenience and distress were a blessing in disguise. We have been compelled to face squarely a serious situation. The country should be independent and self-sustaining always and in every possible direction, not merely on political and military grounds, but on purely economic grounds. The same trend of opinion will appear in all the countries which have had a protective policy; they will have to consider whether it is to be maintained, extended, or mitigated. Not only in the United States, but in other countries, those protectionists who believe that the substitution of domestic production for imports brings in itself unfailling gain, will seek support for their contentions from the war experiences; and everywhere they will call for higher tariff rates.

And, as I have already intimated when speaking of the military commodities, there will be some confusion of thought between this frank and uncompromising protectionism on the one hand, and political and military preparedness on the other. Many persons will be eager to make their country self-sufficing, independent, safe; they will be averse to foreign supply on grounds partly patriotic, in part sometimes selfish. They will believe it a conclusive proof of national gain that a thing is made at home instead of being brought from abroad; they will hold the foreign purchase specially damaging if made from a present rival, and ominous of disaster if made from a former enemy. If they are

themselves producers of articles affected by foreign competition, they will not be loath to fan international jealousy and commercial strife. On every ground—political, military, economic, sentimental—they will argue that all things should be made at home that can possibly be made at home, and most insistently will urge that every newly stimulated industry should be safeguarded by ample tariff protection.

The free-trader, upon the other hand, will maintain that on strictly economic grounds, and quite apart from any questions of political expediency or international sentiment, the matter should be treated as simply involving a balance between gain and loss. He will argue that the continued importation of a commodity in times of peace is in itself a sign not of loss, but of gain. Imported goods are paid for, not through a losing trade in which we part with so much money, but in exchange for exported goods; and they are obtained presumably on better terms when got in exchange for the exports than if they were produced at home. True, war brings a temporary loss—rude interruption and sudden cessation of supplies, improvised substitutes, higher prices, domestic production under forced and perhaps wasteful conditions. The sudden transfer of labor and capital to new industries takes place with a loss of efficiency and with much waste; the succeeding readjustment, if imports are resumed after the war, again entails loss and waste. Here, and here only, in the wastes of sudden changes, is the offset to the presumable gain from free international trade. In the long run, the country does not lose by free imports, but gains.

An analogy, from the free-trader's point of view, is found in the interruption of traffic on a railway or street railway during a strike—something which is often talked of as industrial warfare. During the interruption of traffic, when the existing facilities are unavailable, there is resort to substitutes less efficient and more expensive. Jitnies and express-wagons replace street-cars. But such losses, possible and real, are more than offset by the continuing benefits which improved methods of transportation bring in ordinary times. No one would propose to dispense with railways or street railways because their services may be interrupted by civil commotion. To be sure, if such commotion had to be reckoned with as part of the ordinary course of events, we might be skeptical of the expediency of relying upon means of

communication likely to become frequently and repeatedly inoperative. And so with regard to war and international trade: our attitude is influenced profoundly by our expectation of the future of war and peace between nations.

Between these extremes there are various shades of opinion. There is the moderate free-trader, who has long shed any notions about natural rights to free trade, and has also discarded the belief that the cure for war can be found in universal free trade. Such a person, too, is likely to admit freely the possibility of gain from protection under some conditions—say, those of protection of young industries. He must be impressed also by the portentous changes now brewing in the international order. The world is different from what he wished and perhaps fancied. Not only is defense more important than opulence, to use Adam Smith's oft-quoted phrase, but opulence itself is threatened by the universal crash. How far we must reshape all our ideals and policies must depend upon the eventual outcome—whether the world is to be readjusted to a permanent peace or to everlasting struggle. But the dream of universal free and peaceful exchange of goods has had a rude shock. The strictly economic arguments for protection usually admitted by the moderate free-trader—admitted by him to apply only under exceptional conditions—are reinforced by the hard facts of international conflict, of national jealousy, insecure interchange of goods, cutthroat competition. Such a person would still resist, from intellectual conviction, the extreme policy of the uncompromising protectionist. But he would hold aloof also from the attitude of the uncompromising Cobdenite.

Still another shade of opinion is that of the "reasonable" protectionists. These maintain a faith in protection, but would not carry it too far. No doubt the term "reasonable" is question-begging. The critic inquires at once what is meant by reasonable, and is apt to get only the equally ambiguous answer that it means, not too much. But at all events a protectionist of this type, though desirous of maintaining some dam against foreign competition, would repudiate the Chinese-wall suggestion. He looks for the eventual development and independence of domestic industries, somewhat after the fashion of the free-trader who admits the young industries argument; yet he would not sacrifice any domestic industry once established, even though it con-

tinued to demand and need a considerable degree of protection indefinitely and forever. He is likely to be in favor of what is called the equalization of the conditions of production. Yet he would not equalize everything, and is disposed to accede to the continuance of imports where they would be kept out only by duties at very high rates.

Which of these principles shall prevail, and which shall dominate the policy of the country during the generation following the war, depends largely on political developments in the United States. What party will win in the elections of 1920? The embers of the controversy on protection, buried for a while during the political truce which was maintained through the war, have been stirred once more. The old arguments have come forward, and the old issue will have to be faced again. There is not likely to be a clear-cut issue between protection and free trade. But there will be one on the *direction* which the country's tariff policy shall take. Shall we move toward higher duties, stringent provision against foreign competition, watchful aid to every industry that has been stimulated by the war, building up of every one not absolutely impracticable because of climatic or physical obstacles? Or shall the trend be toward an acceptance of foreign competition as healthy, in the main beneficial, not to be jealously excluded; toward sharp scrutiny of the claims and profits of protected industries, and vigilant care for the consumer? The march of events must be awaited.

This conclusion,—which states a question, not an answer,—is not a satisfactory outcome of a discussion of reconstruction problems. Yet the plain facts of the situation must be faced. No one can predict the outcome, and no one can now lay down the lines of a policy for tariff reconstruction. A period of controversy, partisan debate, uncertainty in legislation, is inevitable. It is possible, and certainly much to be desired, that some matters not necessarily involved in the general debate may be settled on non-partisan lines; such as the methods of provision for military commodities, and perhaps the tariff for specially situated industries like the manufacture of dyestuffs. But it remains to be seen what will be done even on matters such as these; and on the wider questions of industrial policy, we must simply wait and see what the future will bring.

Further, much must depend upon the kind of peace with which

the great war ends. Is it to be a peace of victory and conquest, or a peace of understanding? A sullen truce, or a whole-hearted settlement? Will it include commercial peace, or give play for continued commercial war? There will be strong pressure for the tightening of national bonds, for moving toward the goal of self-sufficiency, for more rigorous protection. A peace which is in the nature of a truce will make this pressure stronger. A peace of understanding will strengthen the hands of those who welcome the development of foreign trade and look to it, not indeed as the panacea of peace, but as the natural and welcome concomitant of peace.

IV.—THE TARIFF COMMISSION AND THE TARIFF

It does not follow from all this that nothing at all can be done. It may not be possible—in my judgment it is not possible—to lay down now a policy of tariff reconstruction. But we can make preparation for the intelligent carrying out of whatever policy the country shall finally adopt. Precisely this sort of preparation the United States Tariff Commission is undertaking to make.

Hitherto in the consideration of tariff problems trustworthy and accurate information has often been painfully lacking. The committees of Congress have been fairly swamped by conflicting statements, on matters pertinent and not pertinent. They have heard unending testimony on both sides. They have found it beyond the limits of physical possibility to deliberate and discriminate, to separate the wheat from the chaff, to ascertain what were the unquestionable facts, still more to ascertain which facts were significant. Complete information on the contested questions has almost invariably proved difficult to obtain. Sometimes, it must frankly be confessed, information really complete may be quite impossible to obtain. No tariff commission can pretend to be a perfect and inexhaustible encyclopedia of information. And yet it may conceivably perform functions of a somewhat encyclopedic sort. Given time, organization, foresight, and the way can be made ready for prompt and intelligent action. The existing commission has already begun the preparation of a catalogue of tariff information, and has put in charge of it a competent and trained statistician, already long experienced in the

work of the Census Bureau. If time is given, and the work of the commission proves as permanent as Congress has planned it to be, this catalogue will become a handy source of reference for pertinent information on the several phases of the tariff question. The design is to have on hand in it, in compact and simple form, all available data on the growth, development, and location of industries affected by the tariff, on the extent of domestic production and of imports, and on the conditions of competition between domestic and foreign products. To gather information of this sort and to present it in usable form is far from an easy task. Like any far-reaching scheme of investigation, it cannot be carried through suddenly or quickly. But given time, the commission means to have, and to keep continuously up to date, a body of information that will be of important service in the determination of tariff policies. This much can be accomplished and surely is worth accomplishing.

Not a little has been said in discussion of the tariff situation in general and of the Tariff Commission in particular about the desirability of a scientific policy. That term should be used with caution. In the field of political and social inquiry we have not reached that stage of scientific certainty which has been reached in so many branches of natural science. The principles of economics can not be laid down in such terms and with such certainty as to enable us to formulate commercial policies which rest upon settled foundations. But the term "scientific" may be used in a different sense from that in which it implies established principles and indubitable truths. In that other sense, it means simply that we shall proceed with care and method; that we shall be accurate, painstaking, discriminating, shall refrain from guess, rumor, exaggeration, from vague and untested general statements. We proceed in a scientific way if we gather all the information we can, sift it with care, present it clearly, apply it intelligently. In this sense the operations of the Tariff Commission may fairly be expected to have a scientific character and prepare the way for a scientific treatment of tariff problems.

And in this sense we can prepare for tariff reconstruction. The task of the Tariff Commission is not to take tariff questions out of the hands of Congress, or to remove them from the realm of statesmanship. The determination of public policy in this direction, as in every other, must rest in the first instance with the

484 AMERICAN PROBLEMS OF RECONSTRUCTION

legislature and ultimately with the people. Nobody, however expert, can settle, still less dictate, the position which the country shall take on controverted political and industrial questions. All that any administrative or investigating body can do is to contribute toward discriminating and intelligent discussion and action.

INDEX

A

- Accumulation of Foreign Balances in the United States, 332
- Act of Congress Relating to War Risk Insurance, 158
- Acworth, William M., 201
- Adams Act, 106
- Addison, Dr., 18
- Adjustment of Revenue and Expenditure, 444
- Alfassa, Maurice, 10, 19
- Alpine, John R., 161
- America's Leadership in Mineral Production, 60
- American of To-morrow, The, 45; New Internationalism of, 54; New Nationalism of, 53; New Outlook for, 45; Problem of Adjustment for, 46
- American Association for the Advancement of Science, 11, 120
- Federation of Labor, 160, 163, 167
- Metric Association, 111
- Sugar Refining Company, 258
- Anderson, Prof. B. M. Jr., 390
- Appreciated Exchange, Alleged Advantages of, 326
- Army Appropriation Act, 201
- Asquith, Mr., 171
- Austin, O. P., 267
- Austrian Anglo Bank, 309

B

- Babson, Roger W., 390
- Bacon, Raymond F., 105
- Banker's Share in the Rehabilitation of Trade and Industry, 311
- Barbour, Sir David, 390
- Barrett Company, 119
- Basis of our Foreign Trade, 312
- Bethlehem Steel Company, 166
- Bodenkreditanstalt, 309
- Bonded Warehouses, Disadvantages of, 255
- Bonded Warehouses, vs. Free Port, 254

- Brand, Charles J., 217
- Breckenridge, Prof. L. P., 101
- British Association Chambers of Commerce, 111
- British Empire Bank of Industry, 306
- British Empire Producers Organization, 28
- British Labor Party, 166; Program of, 35
- British Re-exports, Our Dependence on, 252
- British Trade Corporation, 307
- Brotherhood of Engineers and Firemen, 164
- Brotherhood of Railway Trainmen, 164
- Bryan, Mr., 31
- Budget Reform, 444
- Bureau of Chemistry, 120
- Corporations, 177, 179, 180
- Fisheries, 120
- Markets, 220
- Mines, 103, 104, 120
- Standards, Activities of, 103

C

- Can Democracy Be Efficient?—The Mechanics of Administration, 447
- Canadian Profit Sharing Plan, 211
- Capital, Export of, 315
- Capital and the State after the War, 165; during the War, 155
- Capital, Labor and the State, 153
- Capital's Position Weakened by the War, 159
- Carnegie Peace Foundation, 15
- Carson, Sir Edward, 28
- Carter, W. S., 164
- Causes of Price Movements, 363
- Changes in Industry and Trade Resulting from the War, 184
- Cities Should Finance Free Ports, 264
- Clapp, Edwin J., 245
- Clayton Act, 153, 157, 181
- Cleveland, Frederick A., 447

- Collection and Dissemination of Authoritative Market Information, 220
- Colorado and Utah, Oil Shale in, 68
- Colver, Hon. William B., 177
- Commerce, International, 42; Must Be Renewed at End of War, 269; between Belligerent Groups before the War, 271-272; between Belligerent Groups Should Not Be Sacrificed, 271
- Commercial Power of Belligerents After the War, 272
- Commercial Requirements Not Changed by War, 270
- Committee of One Hundred, 120
- Comparative Position of U. S. and Foreign Countries in Production of Essentials, 472
- Comté France-Amérique, 307
- Concentration and Control in Industry and Trade, 177; Economic Question of, 179; Historical Survey of, 177; Recent Legislation on, 181
- Conservation of Organized Labor in America, 165
- Conservation of Products During the Course of Transportation, 219
- Cooper, Henry E., 305
- Copenhagen, 25
- Control of Industry, 190
- Cost Finding and Price Fixing, 190
- Council of National Defense, 162, 164
- D**
- Definition and Advantages of Free Ports, 245
- Definition of Reconstruction, 24
- Demand for Power, Increased, 61
- Demand for Steel, Deferred, 137
- Democratization of Industrial Management, 171
- Department of Agriculture, 104, 120, 121; of Agriculture and Commerce, 297-298; of Commerce, 6, 16, 241, 279, 281; of the Interior, 6, 103, 120; of Labor, 6, 16
- Department of National Economy (Fr.), 10
- Dependence of U. S. on Foreign Agricultural and Chemical Commodities, 474
- Dependence on British Exports, Our, 252
- Depreciated Dollar, The, 326; Increases American Exports, 329; Curtails American Imports, 330; Its Value to the Exporter, 327; To Allied Purchases, 327
- Desborough, Lord, 354
- Direct Trade and Short Routes, 238
- Disintegration of Alliances between Financial Groups, 156
- Distribution of Agricultural Products and the Functional Produce Exchanges, 217
- Doak, William N., 164
- Domestic Production, Percentage of Consumption Met by, 64
- Donlin, John, 163
- Drayton, Sir Henry, 210
- Duncan, James, 167
- Duncan, Dr. Robert Kennedy, 105
- Du Pont Company, 119
- Dutch International Trading Bank, 309
- Dyestuffs Industry, Aspects of, 470
- E**
- Earned vs. Unearned Income, 439
- Eastman Kodak Co., 119
- Economic Changes Favoring Free Ports, 261
- Economic Problems During the War and Afterward, 39; Currency, The, 42; Government Control, 40; International Commerce, 42; Railways, The, 41
- Edge, Governor, 464
- Effect of the War upon Technical Research, 99; on Trade, 237
- Effect of War Currency Inflation on After-War Industrial Powers, 274
- Emmons, Professor, 68
- Engineering Efficiency, 75
- Foundation, 109
- Research in Government Bureaus and Departments, 103
- Essential Materials, Estimated Supplies of, 66
- Establishing Government Export Standards, 297
- European Theory of a Perpetual Debt, 429
- Evils of Price Movements, The, 368
- Explanation of the Opposition to the Discussion of Reconstruction, 3
- Explanation of Stable Rates During 1915-1916, 402

Exchange Rates of Three Countries, 335
 Exchange Rates Trade Balances and, 321
 Exchange Value of the Dollar, 311
 Export Combinations, 186
 —Industries in Free Port, 249
 —of Capital, 315
 —Trade in Steel, 141

F

Fair Return, The English Standard of, 209
 Faringdon, Lord, 282
 Farwell, John V., 390
 Federal Board of Vocational Education, 11
 Federal Commission on Industrial Relations, 162; Department of Commerce, 225; Farm Loan Bank, 154; Government Appropriations for Agricultural Research, 106
 Federal Reserve Act, 313, 314
 —Bank System, 154
 —Board, 16, 11
 —Foreign Bank, 339, 341
 Federal Trade Commission, 11, 187, 188
 Federal Trade Commission Act, 154, 181, 186
 Financing Our Foreign Trade, 305
 Fiscal Reconstruction, 427; Application to Present Problem, 430; Adjustment of Revenue in, 444; Debt, The, 428; Taxes in, 434
 Fisher, Professor Irving, 361
 Fixed Standard of the Dollar, 387
 Foreign Balances in the United States, Accumulation of, 332
 Foreign Investments, 345; American Leadership in, 356; Foundation Laid for, 355; Importance of, 345; Aided England, How, 346; Possible Factors of the Future in, 348, 353; Opportunities for, 351; Reasons for Solidarity in, 353
 Foreign Trade, Basis of, 312
 Foreign Trade, Financing Our, 305; Adjustments under Consideration for, 306; Conditions to Be Met During the Transition Period in, 309; International Credit Information, 315; British Example for, 316; German Example for, 317
 Foreign Trade of the United States, Table for 1917, 322

Foreign Trust Policies, 182
 France Latin American Association, 307
 Franklin, Jos. A., 164
 Free Port, Definition and Advantage of, 245; Economic Changes Favoring, 261; Effect on Trade of, 250; Export Industries in, 240; New York Chamber of Commerce on, 260; Rapid Handling of Ships in, 250
 Free Port as an Instrument in World Trade, 245
 Free Port and the Consignment Market in the United States, 254
 Free Trade, Protective Tariff Vs., 478-9
 French Socialists, View of, 35
 French Finances, 352
 Friday, Professor David, 403
 Friedman, Elisha M., 3, 15
 Functions of Future Exchanges, 226
 Function of Produce Exchanges, 224

G

General Chemical Company, 119
 General Electric Company, 119
 General Problem of Distribution of Agricultural Products, 218
 German Cartel and Its Objects, The, 183
 —Customs Union, 248
 —Export Bank, 308
 —Social Democratic Party, Platform of, 35
 —Minister of Reconstruction, Policy of, 18
 Gilbreth, Frank B., 125
 Gilbreth, Lillian Moller, 125
 Gompers, Mr., 160, 161, 164
 Goodrich, Governor, 464
 Government Export Standards, Establishing, 297
 Graduated Taxation, 438
 Grady, Henry, 79
 Grashbrookhafen, 248
 Great Britain, Board of Trade of, 225, 279, 281, 282; Ministry of Labor of, 160; Munitions of War Act in, 160, 164
 Government Aids to Trade, 279
 Government Aids to Trade in Austria, 298; France, 292; Germany, 289; England, 282; Holland, 300; Italy, 298; Japan, 294; Scandinavian Countries, 299; United States, 279

Guilford, Mr., 260
Guyot, Yves, 293

H

Habit of Thrift, The, 398
Hadley, President, 390
Hamburg Free Port, The Equipment of, 248
Hammond, John Hays, 390
Harrison, Narcotics Law, 154
Hatch Act of 1887, 106
Hesse, Bernhard C., 145
Higginson, Henry L., 390
Higher Return of Short Time Loans, 403
Higher Yields of Long-Term Bonds, 399
Hollis, President Ira N., 100, 112
How Foreign Investments Aided England, 346
Howe, Frederick, 246

I

Increase of Government Expenditures, 434
Illinois Federation of Labor, 162
Imperial Commission of Transition Works, 308
Imperial Department of the Interior, 279
Impersonal vs. Personal Taxation, 437
Impersonal Taxation, 440
Importance of Research in Reconstruction, 89
Importance of Waste Elimination, Appreciation of, 126
Improvement in Methods of Retail Distribution, 222
Index Numbers, 362, 382
Industrial and Commercial Power of Belligerents After the War, 272
Industrial Census, 7
—Commission, 177
—Concentration Followed by Nationalized Control, 154
—Stabilization, 173
—Workers of the World, 168
International Acceptance Market, 313
International Aspect of Subsidized Industries, 193
International Brotherhood of Boilermakers, Iron Ship Builders and Helpers, 164

International Commerce, 167; Renewal of, 269; New Problem for U. S. in, 277; Trade Regulations of, 270; Volume of, 267
International Credit Information, 315
International Geological Congress, 69
International Harvester Company, 179, 180
International Trade, Revival of Transshipment in, 263
Internationalism, The New, 54
Interstate Commerce Commission, 201, 207
Interest Rates, War and the, 391; Elements of, 392; Permanent Changes in, 395; Influences Governing Them After the War, 408
Invention vs. Research, 115
Investments, Foreign, 345

J

Jacoby, Dr. Henry S., 107
Jefferson, Thomas, 45
Johnson, Professor Emory R., 233
Jones, Dean C. R., 101

K

Kahn, Otto H., 11
Kemmerer, Professor E. W., 390, 391
Kennedy, Philip, 256
King, Walter E., 102
Kreditanstalt, 309

L

Labor and the State During the War, 159
Labor Board, 12
Labor's New Part in Adjusting Disputes, 160
Labor's Part in War Administration, 163
Lack of Standard Due to Lack of Competition, 447
Land Tax, 440
Landay, Adolphe, 349
Lane, Secretary, 61, 79
Law, Mr. Bonar, 171
L'Exportateur Français, 307
Legal Aspects of Consolidation, 178
Leith, Professor, 68
Lessons of the War and European Reconstruction to America, 9
Lever Act, 190
Licensing Agencies of Distribution, 221

Liverpool Cotton Association, 225
 London Consignment Market, 251
 Lowden, Governor, 464
 Lundgren, Professor, 68

M

Man of the Future, The, 54
 March, E. P., 162
 Market, London Consignment, 251
 Market Inspection of Perishable Products, 221
 Market, Price and Extent of, 73
 Master Car Builders' Association, 219
 McAdoo, Director General, 201, 210
 McNair, President F. W., 100
 Mechanics of Administration, The, 447; The Paramount Question in, 462; Principles of, 460
 Mechanics of Democratic Control over Leadership, 455
 Mechanics of National Efficiency, 450
 Meeker, Royal, 390
 Mellon, Andrew William, 105
 Mellon, Richard Beattie, 105
 Mellon Institute, The, 104
 Memphis Cotton Exchange, 224
 Meyer, Eugene, Jr., 11, 20
 Mineral Reserves, Our, 59; Extent of, 66; America's Future Strength in, 66; Factors Promoting Full Utilization of, 73; Equitable Distribution of Net Proceeds from, 77; After-War Needs in, 70
 Minerals the Foundation of the Nation's Industry, 59
 Mineral Industry, War-Time Test of the, 62
 —Readjustment of the, 70
 Minnesota Rate Decision, 154
 Mitchell, Prof. Wesley Clair, 390
 Modification of Practices on Future Exchanges, 228
 Morris, Ray, 199
 Moss, Sanford A., 99, 100
 Munroe, J. P., 91
 Multiple Standard of Commodities, 376

N

National Aniline and Chemical Company, 119
 National Union for the Exportation of French Products and the Importation of Raw Materials, 307
 National Association of Tanners, 119
 —Canners Association, 119

National Defense Act, 110
 —Economic Policies, 150
 —Foreign Trade Council, 15, 140
 —Labor Union, 168
 —Policy, What Should Be Our, 411
 —Productiveness and the War Debt, 170
 —Research Council, 109, 120, 151
 —Shipping Policy, Need for, 240
 —Team Work, 146
 National Thrift, 415; National Aspect of, 422; Personal Aspect of, 421; Its Appeal to the Consumer, 419; Its Social Significance, 416; Its Psychological Value, 422
 National War Labor Board, 162, 163
 Nationalism, The New, 53
 Newlands, Senator, 390
 Newlands Bill, The, 108
 New Markets in War Time, 205
 New Trade Regulations, Regarding, 270
 New Sources of Revenue, 435
 New Uses for Steel After the War, 140
 New York Cotton Exchange, 225
 North America, 354
 Noyes, Alexander D., 39

O

Outlines of a Domestic Policy, 94
 Output of Metals, Increased, 63
 —of Steel, 100 per cent., 139
 Our Mineral Reserves, 59
 Outstanding Deficiencies, 65
 Overseas Banking Corporation, 339
 Owen, Robert L., 321, 390

P

Paint Manufacturers Association of the United States, 119
 Patchin, Mr., 266
 Peabody, George Foster, 390
 Perkins, George W., 45
 Perrin, John, 390
 Persons, Prof. Warren M., 390
 Phillips, Professor W. Allison, 35
 Pier Delays, Customs Cause, 260
 Potter, Dean, A. A., 99
 Preparation for Tariff Reconstruction, 482
 Prescott, Major Samuel C., 102
 Present Incentive to Save, Individual, 424
 Present Incentive to Save, National, 425

- Price Fluctuations Due to Money Conditions, 364
 Price Movements, Facts Concerning Causes of, 363
 Principles of Reconstruction in Europe, The, 15
 Private Enterprise and Government Function, 242
 Problems of Reconstruction in the United States, 3; Immediate, 6; Long Range, 8.
 Problem, The Shipping, 233
 Producers, More Extended Organization of, 218
 Produce Exchanges, Types of, 224
 Production of Essentials, Comparative Position of U. S. and Foreign Countries in, 472
 Protective Tariff Controversy, 477
 Protective Tariff vs. Free Trade, 478-9
 Purpose of Reconstruction in Europe, 35

R

- Railroad Problem, The, 199; Assumption of Government Ownership, 201; Difficulties of Government Ownership, 202; Concentration of Authority and Responsibility in, 204; Measure of Fair Return, 208; Summary of, 215; Terms of Resumption of Private Ownership, 202
 Railway Contract Act, 41
 Rathenau, Walter, 28
 Readjustment of Industries, 135; Attitude of the Public Toward, 146; Conversion of Plants in, 139; Effect of New Public View Point on, 147; New Outlook for, 143; Our Real Object in, 148; After the War, 150
 Readjustment of the Chemical Industry, 145; Steel Industry, 150; Mineral Industry, 70
 Reconstruction, Fiscal, 427
 Reconstruction in the United States, The Problems of, 3
 Reconstruction in Europe, 5, 15, 25
 Reconstruction, Literature of, 15
 Reconstruction Opportunities, 351
 Reconstruction Policy, Aims of a, 33
 Reconstruction Policy, Determinants of a, 191
 Relation of Labor and Capital, 48
 Relation of Research to Industry, 118

- Relation of Shipping to our Post-Bellum Commerce, 236
 Relation of State and Federal Taxation 444
 Reis, Mr., 255
 Repayment, American Theory of, 430; Reason for Rapid, 431, 432
 Research, A Triumph of, 93
 —and the Engineering Profession, 108
 —in Japan, 97
 —Industrial and Scientific, 288
 Restraint, the Lack of, 29
 Results of Advances in Rates of Interest, 410
 Results of our Neglect of Research, 116
 Revenue and Expenditure, Adjustment of, 444
 Rice, Mr. Calvin, 114
 Richards, Dean C. R., 100
 Rogers, Allen, 115
 Rogers, Thorold, 213

S

- Sandtorhafen, 248
 San Francisco Wholesale Dairy Produce Exchange, 224
 Schwab, Charles M., 29, 135, 166
 Scientific Management, 125; as an Agent of Democracy, 132; as a Reconstructive Agency, 130; Changes in, 126; Place in World Development of, 133
 Scott, W. R., 16, 21
 Seligman, Professor Edwin R. A., 427
 Sherman, General, 70
 Sherman Law, 154, 177, 180, 190
 Shipping Problem, The, 233; Dual Nature of, 233; Recent History of, 234
 Sisson, Francis H., 345
 Skinner, C. E., 101
 Smith, A. H., 201
 Smith, George Otis, 59
 Snow, Chauncey Depew, 279
 South America, 354
 Stabilizing the Dollar in Purchasing Power, 361; Summary of Plan for, 384; After War Significance of, 388
 Stabilizing Foreign Exchange, 321
 Practical Aspect of, 326; Need for, 336; America's Interest in, 331; Allies' Interest in, 327; United States' Interest in, 329
 Standard of Living, 418

Standardization of Grades and Containers, 218
 Standard Oil Company, 187
 State of Hamburg, 248
 Statistical Table of Mineral Output of United States for 1913, 60-61
 Strategic Value of Industrial Independence, 60
 Strauss, John F., 259
 Surgeon-General's Office, 6
 Swasey, Ambrose, 109
 Shipbuilding Labor Adjustment Board, 164, 169

T

Table of Estimated Capital Increases of the Country, 1913-1917, 403
 —of Foreign Trade of the United States for 1917, 322
 —of Interest Rates in New York City by Quarterly Periods, 1914-1918, 404
 Table of Net Interest Yields, of West Shore Fours of 2361, 400
 —of Total Oil Remaining in Ground in United States and Alaska Jan. 1, 1917, 67
 —Showing Net Yield of Twenty Railroad Bonds as of Date March 1, 1914-1918, 401
 Tables of Steel Production, 136
 Taft, Mr., 12, 162
 Tariff Commission, New York Hearing of, 255, 259, 260, 266; Philadelphia Hearing of, 257
 Tariff Problems After the War, 465
 Tariff Problems on Military Articles, 467; Essential Articles, 472; Non-essential Articles, 476
 Tariff Reconstruction, Preparation for, 482
 Taussig, F. W., 465
 Tax on Business, 442
 Tax on Capital, 441
 Taxes, 434
 Technical Research, General Aspects of, 89
 Technical Research in Engineering and Allied Subjects, 99
 —in Chemical Industries, 115
 —in the United States before the War, 102
 —in Colleges and Universities, 105
 —after the War, 111

Technical Research, Temporary Changes in, Resulting from the War 92,
 —Readjustments Necessary in, 93
 —Recent Progress in, 120
 Theory of Anti-Trust Legislation, 180
 Thrift and Reconstruction Needs, 417
 Tools of Democracy, The, 12
 Trade Balances and Exchange Rates, 321
 Trade, Government Aids to, 279
 Trade Promotion, Radical Departure in, 285
 Trade Promotion Service, Rounding out the, 296
 Transfer of Property, Unjust, 368
 Transshipment in International Trade, Revival of, 263
 Turneure, Dean F. E., 107
 Types of Savings Institutions, 423

U

Ullman, Joseph, 262
 United Mine Workers of America, 164
 Universal Training for Service, 52
 Unjust Transfer of Property, 368
 United States Naval Consulting Board, 109
 United States in Reserves, World Position, 69
 United States Rubber Company, 119
 United States Shipping Board, 11, 241
 United States Tariff Commission, 11
 United States Steel Corporation, 119, 179
 Utilization of Changes, 127
 Utilization of Resources, 73

V

Vanderlip, Mr. Frank A., 31, 415, 390

W

Wages and Prices, 213
 Walker, J. H., 162
 Walsh, F. P., 162
 War and the Interest Rates, The, 391
 War Adjustments, 61
 War Boards and Reconstruction, 287
 War Department, Building Program, 161
 War Finance Corporation, 413
 War Industries Board, 138, 139, 163, 189
 War Labor Conference Board, 162

- War-Time Channels of Saving, 423
War-Time Test of the Mineral Industry, 62
Washington Federation of Labor, 162
Waste Elimination, Appreciation of Importance of, 126
Webb Act, 193
Webb, Sidney, 17
Webb Export Law, 142
Webb-Pomerene Act, 280
Wehle, Louis B., 153
Whetham, Dampier, 10
White, John P., 164
Whitney, Willis R., 89
Whitney, Dr. W. R., 114
Why America Must Finance Europe, 353
World Manufacturers, Belligerents are the, 269
World Trade Coming Here, 262
Workmen's and Soldiers' Council of Russia, 167